

**Los Angeles
Mining Review
1909**

Volumes 25-26

A Scrapbook of Articles
Primarily Pertaining to
Southern California
Mining Activity

Assembled by
Alan Hensher

CONQUERING THE DESERT

Tonopah & Tidewater Railroad Has Opened a New Empire to Los Angeles.

(BY W. W. HITE)

THE ROMANCE OF the desert will never be completely chronicled. A few have tried, with indifferent success, to picture in words the weird and varied witchery of the mighty expanse which forbids and yet more strongly attracts. Many others, with better success, have described a few of the thousands of startling episodes experienced by those who have dared the arid reaches in early and recent days. Most of these have been the results of careless and foolhardy attempts to do the impossible, under conditions theretofore unknown. For the desert is not unkindly, if those who probe her secrets exercise a modicum of forethought and discretion.

But this vast stretch of sand and sage-brush is rapidly yielding to the conquering march of human need and desire. Hardy prospectors, braving deprivations of every sort, have spied out the land and found it treasure trove. Fine land, rich ores, healing waters, valuable chemical compounds, gems and much-needed building materials, have come under the ken of this pioneering. To make these available for man's use, transportation facilities are necessary, and railroads, the pioneers of progress and harbingers of civilization, are flung across the wastes. Thus the desert is conquered and robbed of its terrors.

One of the last strongholds to be

subdued, is the region traversed by of shafts and tunnels on the nearby mountain ranges. They carried certainty of early reward for patient toll. At the same time, they sent their echoes through the lower gateway of Death Valley, that mysterious sink in the earth's crust, where mighty convulsions and nature's alchemy have flung wide, for man to find and utilize, gems, precious metals



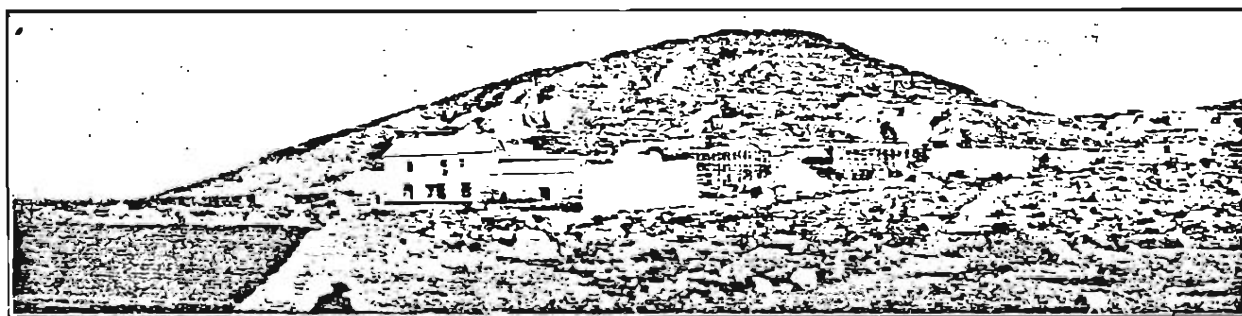
Dayton's Grave, Death Valley, and other treasures. Within it and its borders may be found a thousand lessons in the earth's geological history which can now be easily scanned by the student, scholar or curious wayfarer through the medium of a Pullman car.

It is probable that no richer sec-

tion of the desert has been brought within easy access than the part effort to arrive at a just and truthful record of their value. To compute the latter is impossible. Almost as difficult is it to enumerate the varied sources of wealth.

A thousand potent facts might justly be added to this sketch, were space available. Most important to the investor and to the men who contemplate entering the mining business, is the fact that this is still largely "a poor man's country," where those of limited means may acquire by purchase or discovery, claims which may lead to fortunes.

Viewed from the economic and sociologic standpoint, the building and operation of the Tonopah and Tidewater has accomplished wonders. The current of trade has been changed to a new direction. It brings to twenty thousand square miles of territory, vastly increased facilities for business. Through the cheapening of freight and passenger rates, it has doubled the possibilities of export and import of many modern El Dorados. It has not only stimulated the production and shipment of rich ores, but the owner of low grade, as well, now has the opportunity to send his product to the smelting fires. The necessities of life, as well as the luxuries, are made easier of attainment, for the inhabitants of all this region have been brought many hours nearer a splendid market. That market is Los Angeles, whose material welfare and volume of trade has been vastly increased through the natural flow of this new artery



Lila C. Borax Mine and Plant.

the Tonopah and Tidewater railroad, extending from a connection with the great Santa Fe system at Ludlow, in San Bernardino county, to Goldfield, and reaching many other mining camps of Nevada. The first through trains passed over the line on December 8th, 1907, and the reverberating echoes of the locomotive whistles were answered with glad acclaim by sturdy miners standing at the mouths

which is tributary to the Tonopah and Tidewater railroad. This has been proven by the rich mines developed and the vast deposits of useful commodities partially explored and exploited. The writer of this article has spent the greater part of the past two years in studying the geologic and physical features of the region, in an investigation of its varied resources and in a painstaking

of commerce. A still greater increase is possible if the city's merchants, bankers and captains of industry will recognize the possibilities presented to them. Our northern neighbors must be visited and shown that Los Angeles is a distributing center second to none and the glad hand of welcome must be freely extended to them when they come to us on pleasure or business bent.

finds will result from the work which is now in hand.

Geological Conditions.

The country is traversed by a series of rhyolite and quartzite dykes running northerly and southerly, the recent discovery being made in a fissure of altered and highly-silicified rhyolite in a true rhyolite dyke and apparently holding the same general course as the main dyke. There are, however, two theories advanced by mining men who have made a study of the situation. One is that the ore-bearing fissure runs with the formation and the other that it is in a cross fissure running almost at right angles to the general trend of the formation. In support of the latter theory it is pointed out that the Mayflower vein system, about 4,000 feet to the south, and developed to the 500-foot level, runs practically east and west and that good surface values have been found both to the east and west of the original discovery on the Pioneer. My opinion is that the former theory is correct—that the ore-body is carried in a fissure within the main rhyolite dyke and holding the same general course.

The Bonanza Lease.

The lease workings were started upon an altered rhyolite fissure in a true rhyolite dyke, which crops boldly for several thousand feet, and when operations were commenced no values in excess of \$4 were encountered. In spite of this, work was prosecuted with varying degrees of energy and at 130 feet the values had risen to \$60 a ton. At a depth of 156 feet a large body of ore, running well over \$100, was encountered and since that time twelve carloads have been shipped with smelter receipts in the neighborhood of \$120. From an underhand slope at that level the last two carloads extracted gave returns of \$191 per ton. At this point the ore-body

is apparently over 30 feet in width and the excavation from which the shipments were made is from six to eight feet wide. No sorting was done and it is said that at least ten or eleven feet of the ore will give the same returns.

The single-compartment shaft has now been sunk to the 210-foot level and the ore-body cut by a drift run out to the west. A connection with



"Alkali Bill" at Death Valley Junction, Hauling Two Tons of Potatoes.

the 156-foot level was made a few days ago and the property is now in shape to maintain shipments of 100 tons a day. Ore bins have been erected at the Springdale siding of the Tonopah & Tidewater Railroad, two and a half miles to the northeast, and there is little doubt that the contemplated shipments can be maintained indefinitely. So far as developed, the ore shoot is about eighty feet long, shows its richest values at the lowest point and is maintaining the width shown on the upper levels. An average sample across the south drift at the 210-foot level, showed over \$200 a ton. A 50-horsepower hoist and 25-horsepower compressor plant have been ordered and as soon as the improvements have been installed the work of steady shipments will be undertaken in earnest. The property

is in charge of Mr. Frank A. Keith, who recently resigned from the management of the Tonopah Mining Company to accept the position, with Mr. Wm. Mader as superintendent and Mr. Jack Campbell as foreman.

Town's Rapid Growth.

As the new camp is but three miles from the Tonopah & Tidewater Railroad, and as it is therefore possible to import the necessary supplies at a reasonable cost, the growth of the town of Pioneer has been rapid. The population is conservatively placed at 1,000; considerably over 100 miners were at work on the Pioneer, Mayflower and numerous leases which have already started operations, when I was there. As soon as contemplated improvements have been installed at the Pioneer this number will be considerably augmented and will be further swelled by other leases.

The Mayflower Mine.

At the south end of the camp, and within 4,000 feet of the Pioneer shaft, the Mayflower Consolidated Gold Mining Company, controlled by Goldfield and Rhyolite capital, has just placed its new five-stamp experimental mill in commission and it is reported to be running upon \$50 ore. The property has been consistently explored for the past three years and has reached the 500-foot level, where sufficient water has been developed to supply the mill. The mill feed is being taken from the 300-foot level and there is sufficient in sight in the different levels and on the dumps to keep the plant busy indefinitely. The new mill is in the nature of an experiment and will be added to as occasion warrants. It consists of five 1050-pound Joshua Hendy stamps with cyanide tanks, while other equipment includes a 25-horsepower hoist and compressor plant capable of running the pump recently installed at the 500-foot level and seven Ingersoll Sargeant drills.

PIONEER NORTHERN PROPERTY

On the Extension of Same Strike as the Pioneer and Mayflower, Bullfrog District, Nevada.

(CONTRIBUTED TO THE MINING REVIEWS)

THE BULLFROG PIONEER Northern Mines Company owns, and is developing, the Union group of claims on the northern slope of Pioneer or Tobin mountain, comprising the Corona, Tiago, Green Mountain and Margaret claims, which cover 80 acres in a block, 1200 x 3000 feet, the length of the rectangle extending directly north and south.

The company has sunk a shaft on the southern end of the Corona, with

in 100 feet of the Jack Owen's lease on the Bankers Life claim of the Valley View company, to a depth of 30 feet, and has struck, in a well-defined fissure vein, nearly four feet of fine-looking quartz showing assay values of from \$2.00 to \$18.00 per ton.

The shaft has been sunk on the foot-wall, the ledge pitching 20 degrees toward the west; the hanging wall is not yet in sight but it is estimated that the quartz body is about four feet in width at this depth, and

a vein of black oxide of manganese has been present almost from the surface and is now about fourteen inches wide. There is strong evidence of hydro-thermal action, and values have been present from the surface. The formation is rhyolite and porphyry with a lime contact on the hanging wall. The trend of the ore-bodies is to the north and northwest and when exposed the dip is to the west. From the trend of the deposits it is safe to expect the same general character of ore-bodies as are found on the Pioneer and Mayflower, the Pioneer Northern being directly in the course of a line drawn through the two. Four well-defined dykes run into and through the property and the course of the great Pioneer vein through Pioneer mountain takes it

MAR 27 1909

Earle R. Clemens, "The Bullfrog District," L.A.
Mining Review, March 27, 1909, pp 57-58. (Clemens
was editor of the Rhyolite Herald)

Extract on Crescent, Nevada, p 58:

"Over in the Crescent district--twelve miles to the west--the Nevada Victor Co., (Geo. P. Spittall) is building a 600-ton concentrator for its own and custom use. It also announces that it will put in one of the newer type of small smelters--presumably the Fink--and build its own railroad; a distance of twelve miles, to connect with the Salt Lake Road, near Nipton.

"Scattered over twenty miles to the south of Searchlight are the O'Conner district, Juniper, Kendall, Leadville, Thurman and Empire. Some of these have creditable production record and with history dating back many years. Most of them represent a revival with the advantage of much old development. It is a section that cannot fail to produce a number of noteworthy mines." #

MAR 27 1909

THE SKIDOO MINES

The Only Desert Property Run by Water Power. Producing Steadily Under the Management of Los Angeles Men

(CONTRIBUTED TO THE MINING REVIEW.)

SITUATE ON A COMMANDING ridge of the great Panamint Range, at an altitude of 5,800 feet above sea-level and within sight of that gruesome sink known as Death Valley, are the Skidoo mines, developed to the producing stage by Mr. "Bob" Montgomery, one of the most popular and deservedly-successful men ever identified with the mining history of the desert and who is now enjoying the fruits of his energy in Los Angeles.

Some idea of the magnitude of the work brought to fruition in one of the most forbidding spots in the world can be gathered from the fact that over \$400,000 was invested in the equipment of the property, not including the purchase price, before the stamps began to pound out the gold which nature had deposited with such prodigal hand. Nearly \$250,000 was expended in bringing water from Telescope Peak alone, and the balance of the investment is represented by the complete fifteen-stamp mill and cyaniding plant and the modern houses which have been erected for the accommodation of the force which is now at work.

During the time consumed by the installation of these improvements the nation was visited by a panic of unprecedented severity, a financial upheaval which brought dark times that tried men's souls, even in spots nearer civilization and even in pursuits which require less grit and financial nerve. But Mr. Montgomery never faltered, and a great portion of the fortune he had recently won by the sale of the Montgomery-Shoshone mine at Rhyolite to Mr. Charles M. Schwab, was used in placing the property in its present successful condition.

The property of the company consists of about 240 acres of mineral land of which only about 60 acres have been even partially developed. This work has, however, produced the tonnage put through the mill since last July and has also resulted in the blocking out of 49,320 tons of ore that will average in the neighborhood of \$20 a ton. The company also owns two mill sites of five acres each with a supply of water sufficient for the operation of 100 stamps when fully developed. The pipe-line, one of the greatest works ever attempted in the mining development of the desert, is twenty-three miles long and reaches from the highest point in the Pana-

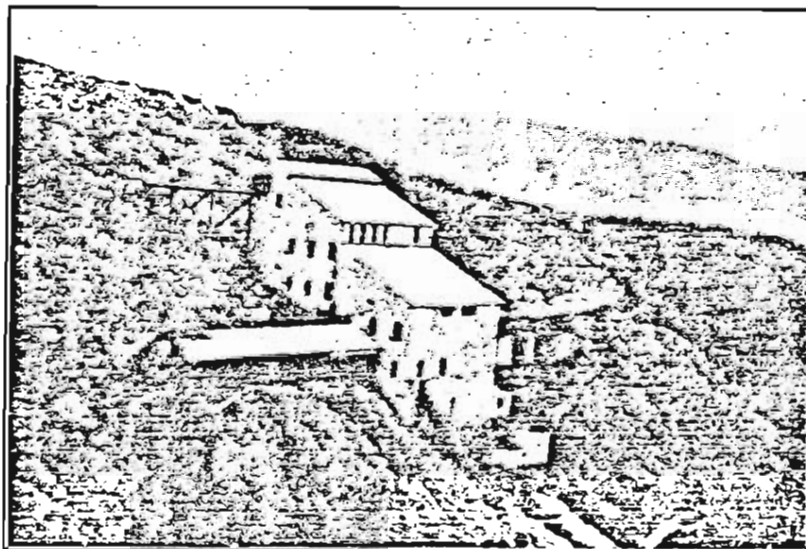
mint Range, known as Telescope Peak, and a land-mark for hundreds of miles around. The first ten stamps of the new mill were placed in commission last July and the recent addition of five stamps have been doing duty since the middle of last month.

Prior to 1908, shafts and cross cut tunnels through country rock received most attention, resulting in placing in sight about 12,000 tons of ore. During 1908 developments have been principally in ore, with the result that, notwithstanding 5,250 tons have been milled, there are now in sight 49,320 tons, showing ore placed in sight during the year amounting to about 42,600 tons.

The large main ore body known as the "main vein" and on which the

These figures show a total of 49,320 tons in sight, the values of which, as shown by assays made during developments, are \$812,500.00. The actual bullion returns from ores heretofore milled have been about 15 per cent. better than indicated by similar assays, and the total value may, therefore run up to \$934,375.00. In addition to this there is now in sight a vast amount of the lower grade ore, but of a commercial value, while there are many thousands of tons practically proven.

According to the annual report, which has just been issued, 5632 tons of ore yielding \$110,505.81, have been milled since the plant was placed in commission last July and of this amount less than 2,500 tons treated by the cyanide plant, yielded \$4,186. The remainder of the tailings have been stored for future treatment and are estimated to yield a profit of \$6,500. The total cost per ton was \$3.69, including the development of the 49,320 tons placed in sight in the mine.



greatest amount of work has been done, is from three to sixteen feet in width, averaging seven feet, and shows ore practically proven for 700 feet in length, but actually exposed 450 feet in length, with 15,500 tons in sight of the average high grade ore. To this there is added 9,500 tons of \$10.00 ore and a considerable amount of \$8.00 ore.

Vein No. 2, which is next in importance, shows by a drift on ore 100 feet long on the first level, which is 200 feet deep on the incline of vein. 5,400 tons of \$15.00 ore, and by other developments on the sub-level and surface, showing ore 200 feet in length with 9,800 tons in sight of the average high grade ore.

In workings on the third vein, which is developed by tunnel, the face of which is 200 feet below the surface, there are 4,000 tons in sight of the average high grade ore, and 1,000 tons in sight of \$10.00 ore. On other ledges there are numerous places where there are small developments showing ore to the amount of 4,150 tons in the aggregate.

It is expected that this cost will be reduced to \$3.10 per ton and it is believed that dividends will be commenced next May and continued indefinitely thereafter.

For these excellent results, much praise is due to the efficient superintendent, Mr. H. W. Squires. The management is confident that future operations, as disclosed by monthly reports, will show improved conditions, and that there will be no difficulty in paying the annual dividends of 20 cents per share, as promised in the annual report. It is gratifying to note that by these annual and monthly reports stockholders are furnished with complete information which will enable them to determine the actual value of their stock. By adopting this plan the Skidoo mines is setting an example which, if generally followed, would prove beneficial to investors.

These reports will be furnished cheerfully upon application to the main office, 806 Security Building, Los Angeles.

CALIFORNIA HILLS

A Prominent Gold Property in San Bernardino County, California, Being Developed by Los Angeles Capitalists

(CONTRIBUTED TO THE MINING REVIEW.)

Aptly named, the properties of the California Hills Company, occupy a large part of the low rolling hills at the foot of the Sunrise Mountains, in the Gold Bend mining district, San Bernardino county, California.

Within easy reach of smelter and railroad, systematic mining has been going on for some months for the purpose of determining the extent of the ore bodies and blocking out same, the work undertaken being more in the line of permanent development than for extraction of ore, although considerable paying quartz has been sacked at the Gold Dollar, Blue Bird and Iron Horse properties.

The Gold Dollar shaft has attained a depth of 200 feet; the Blue Bird

depth underneath this hill half a dozen veins will merge into one, this occurring between 500 and 800 feet from the surface. Large masses of quartz upon the trend of the various veins, cover the eastern slope of Gold Dollar Hill. A good wagon road has been built up to the mine.

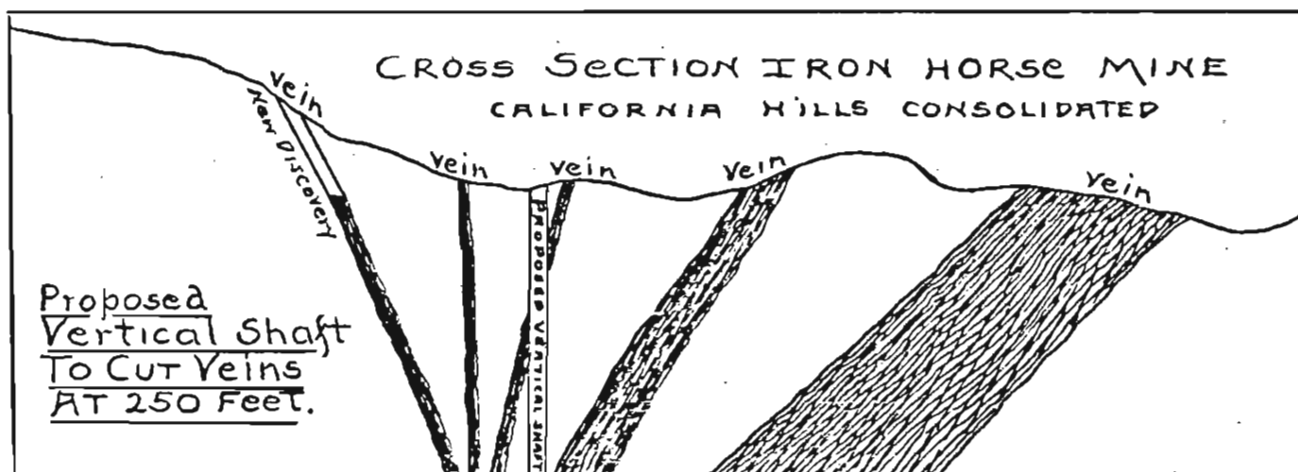
The Gold Dollar, the principal gold property in eastern San Bernardino county, is owned by the California Hills Mining Company listed upon the Los Angeles exchanges. Following north upon the course of the Gold Dollar, immediately adjoining the Gold Dollar property, are the series of veins and veinlets on the Iron Horse group. Here the ore bodies are found in fissures crossing and running diagonally to the Gold Dollar.

So far as developed, there are five veins, the north two, including an enormous quartz ledge, dipping to-

being a white quartz. The vein has been opened for a thousand feet or more, passing from open country into the foothills, and thence undoubtedly into the main range, showing its continuity. Branching from the Blue Bird is the Hidden Treasure vein, assaying well, but upon which little work has been performed.

Paying ore has been found during the past three months at several new points in the above territory, not only enlarging the field, but illustrating the possibilities of the Gold Bend district, and a dozen other veins outcrop, parallel to and between the Gold Dollar and the Blue Bird, which have never felt the pick.

From its extent, to properly develop this gold belt requires ample funds and time, together with treatment facilities to handle the large bodies of milling rock certain to be uncovered. For this purpose the organization of The California Hills Consolidated Mines Company was effected, and at the present time, the control of all of the groups mentioned, including the control of the capital stock of the California Hills Mining Company, is vested in the new



58 feet; the Iron Horse 30 and the Blue Bird No. 6, 100 feet. In the Gold Dollar shaft prior to starting sinking, at 108 feet, a drift was run north upon the vein and at 40 feet from the shaft a large body of quartz penetrated.

At water level, which is estimated to be 225 to 250 feet from the surface, the north ore shoot should dip into the shaft. When water level is attained the company will start a drift south on the vein to intercept the south ore shoot, which so far as developed, has been of good grade.

Recent prospecting has proven the continuity of the main Gold Dollar vein several hundred feet south of the original discovery, and it is anticipated that the main ore bodies will be found south of the shaft on the northwest slope of Gold Dollar Hill.

Further development of the eastern system of veins discloses a condi-

ward the southerly three. All will combine at less than 250 feet. The new shaft started on the Iron Horse late last year produced some very good ore, carrying free gold with a small percentage of copper. This, the Purcell vein, will prove the rich core of the main deposit when opened up.

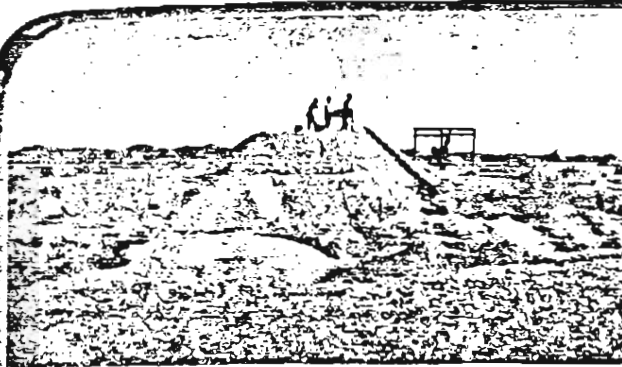
The Iron Horse veins show plainly upon the surface for several hundred feet. Twelve hundred feet to the northwest of the Iron Horse is the Blue Bird No. 6 vein, where a working shaft to a depth of 100 feet has been completed. The main vein, lying to the west of the shaft, should be encountered at about 120 feet from surface.

At shallow depth in the discovery, high values are found, much of the rock returning 5 oz. gold and 6 per cent copper. Six hundred feet or more westerly from the Blue Bird No. 6 is the Blue Bird, one of the first discoveries in the district. Here the finest specimens of free gold from this end of the country have been mined. Chrysocolla is present in varying

corporation. At the head of the California Hills Consolidated Mines Company is Mr. A. A. Rolleston of Colorado, associated with Mr. D. H. Moffatt in banking institutions; the directorate including well-known mining and business men of Colorado, Chicago and Los Angeles. Mr. F. A. Chapman, the vice-president, is a prominent business man of Denver. These, together with F. M. Woods of Colorado Springs, R. C. Griswold, Chicago and Mr. R. L. Anderson, associated with Mr. H. E. Woods of this city, comprise the board of directors.

The treasury stock of the holding company has been underwritten in the east by Messrs. Austen and Downes, a strong firm which has made a notable success in providing capital for legitimate enterprises. The properties are being managed with prudence and developed along economical lines, and those interested are certain that they have added a string of paying properties to the long list of producers which, from the mother lode upon the north to the San Diego line, grace

1909

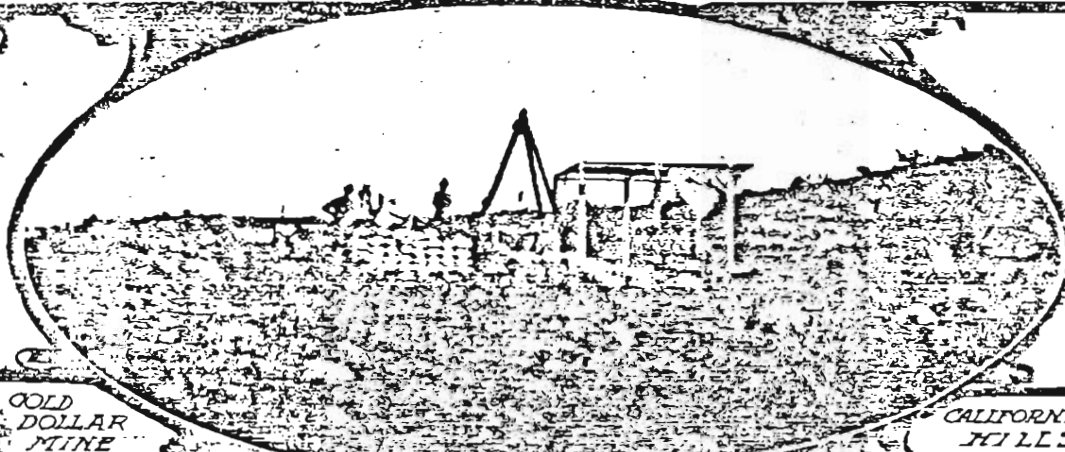


BLUE BIRD No 6



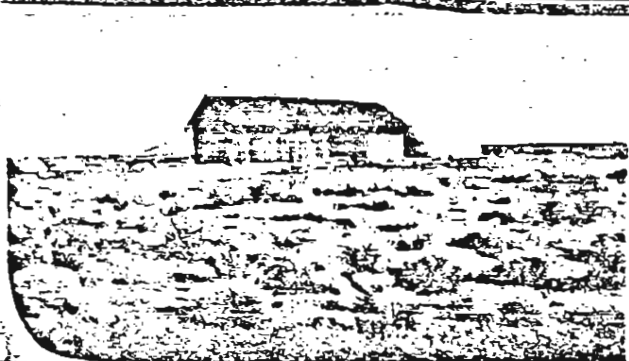
BLUE BIRD MINE

PROPERTIES CONTROLLED BY ♦♦♦♦
CALIFORNIA HILLS CONSOLIDATED MINES CO.

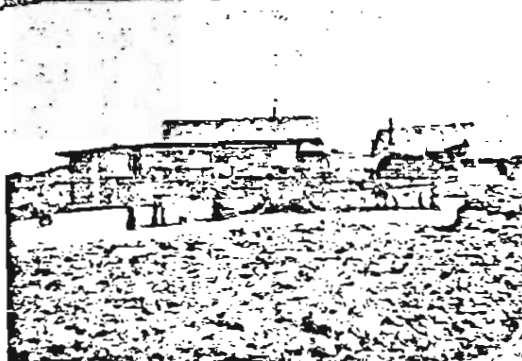


GOLD DOLLAR MINE

CALIFORNIA HILLS



OFFICE CALIFORNIA HILLS CONSOLIDATED



BOARDING HOUSE CALIFORNIA HILLS CONSOLIDATED



NEW STRIKE IRON HORSE

MAR 27

1909 THE DESERT'S DRY LAKES

They Contain Enough Soda to Supply the Entire World with the Finished Product.

(BY G. E. BAILEY, E. M., PH. D., LOS ANGELES)

NATURE HAS PROVIDED enough raw material for Southern California chemical factories to supply the world with finished products for centuries to come.

During the ages when the oceans were draining off the Great Basin, that lies between the Sierra Nevadas and the mountains of Utah, the salts and minerals held in solution naturally gathered and concentrated in the lowest pools in the ocean beds. Some of these great pools, like Death Valley and Salton sink, are below present sea level. The position of others is now marked by the so-called "dry lakes" of the desert. These are sinks, or depressions in the floor of the desert, that have no outlet. They receive the drainage from large areas of what rain does fall, and from the occasional cloud-burst; but the evaporation ever exceeding the annual precipitation, they remain dry except for brief periods.

All waters reaching them bring their load of "alkalies," or saline minerals leached from the soils and held in solution, so that the deposits are ever increasing in quantity. As this process has been going on for ages, the deposits have accumulated

in quantity almost beyond calculation.

The surfaces of the dry lakes often gleam and glisten like great fields of snow, and their size astonishes the stranger. Soda Lake is from three to four miles wide and eighteen miles long, but it is small when compared with either Death Valley or Salton Sea.

The contents of the dry lakes vary in chemical character according to the rocks in the drainage area which decompose and furnish the leached salines, and to local condition. Where volcanic vents have furnished hot waters and steam charged with boric acid, borates of lime or of soda were formed, as in the north end of Death Valley. Salton Sea was mainly pure sodium chloride-salt. Owens Lake contains a mixture of many minerals in solution. Danby Lake contains vast beds of purest rock salt, as well as deposits of pure glauber salt, and crystallized gypsum.

Soda Lake is unique in containing sodium sulphate and sodium chloride uncontaminated with lime, magnesium, or other chemical impurities.

The growth and success of great chemical industries depends upon a cheap and inexhaustible supply of the raw material. The dry lakes of our

arid region can furnish all that anyone could ask for. The surface deposits are underlain by still older deposits as has been shown by shafts and borings.

The variety in the chemical character of the different deposits enables the manufacturer to select those best adapted to his purposes and processes.

The starting point for nearly all manufacturing chemical processes is sodium carbonate; from making baking powder to paints and drugs, from armor plate to welding iron, this chemical plays the most important point. It is the most common, the most necessary, and the most useful tool that the chemist has.

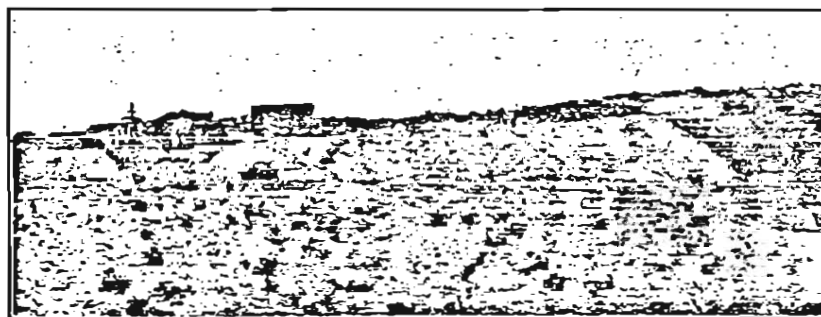
Realizing this fact, the Pacific Coast Soda Company has entered the field to become the pioneer in building up a chemical industry in Southern California. It has selected Soda Lake as the best source of supply of the raw material. Its plant, erected at a cost of thirty thousand dollars, is at Soda Lake Station, on the Tonopah and Tidewater railroad thirty miles north of Ludlow. This plant is unique in character, and was designed and constructed by Southern California men. It is as simple as it is effective. A narrow gauge railroad, nearly two miles long, brings the crude salts to the mill. A revolving tube mill breaks up the crusts and dissolves them into a strong brine. Huge V-shaped vats, overflowing in series, give a clean, strong brine in the last vat while the sand and other mechanical impurities settle to the bottom and are drawn off there.

The pure saturated brines are chilled

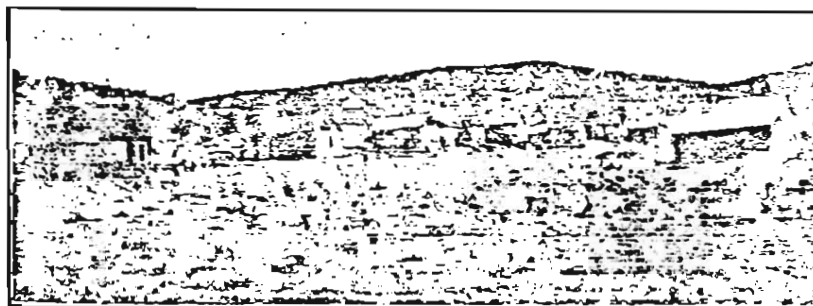
CALIFORNIA GOLD AND COPPER COMPANY.

A. H. CRAM, President and General Manager; C. W. PAGE, Vice-President; H. C. HIBBARD, Secretary; Citizens Bank, Riverside, Treasurer.

WORK on the California Gold & Copper Co.'s millsite at Vontrigger, Cal., is progressing very satisfactorily. The mill will be operated by electricity generated by a gasoline engine and when completed will be 100 ton capacity and strictly modern. Rock for the automatic mixers is hauled from the quarry eight miles distant and is cut in shape



Mine Shaft and Ore Dump, California Gold and Copper Company.



California Gold and Copper Company's Camp.

at the mine with machine drills and chisels operated by an air compressor now installed on the property. This company has been developing their property for years and have also developed and piped water from the Hackberry mountains, a distance of eight miles, gravity flow. This company believes in developing a property first. All this they have done and now comes the reduction plant. They have a mountain of ore. You cannot afford to let this opportunity get away. Investigate this. Our main office is at 339 Main street, Riverside. You will not have to wait long for a dividend. Help us build our plant. The stock is reasonable.

CALIFORNIA GOLD & COPPER CO.

319 San Fernando Bldg. Los Angeles, Cal.

THE DESERT'S DRY LAKES

(Continued from Page 79.)

In huge tanks by pipes from a ten-ton ice plant and pure sulphate of soda crystals are quickly deposited on the bottom of the tank. The mother liquor drawn off is a heavy salt brine, which is evaporated by the hot desert sun in outdoor ponds. The whole mill is automatic and nothing is handled by hand after the crude material is loaded on the cars.

The principle involved is the fact that water at freezing temperature does not dissolve or hold sodium sulphate in solution, while salt is perfectly soluble at that temperature.

The plant produces pure sodium sulphate, (Glauber salts), and pure sodium chloride (common salt), in a few hours, where the old processes of fractional crystallization and evaporation would take weeks and then not give as pure an article. The sulphate of sodium is used by glass makers, dyers, soap men, for wood pulp etc. Its main use will be as raw material for making sodium carbonate.

A large factory has been erected at Santa Ana, at a cost of over \$40,000, and some of the heaviest machinery installed. Here the sulphate will be roasted with carbonate of lime and carbon, and the carbonate of soda formed is leached out from the furnace product.

There is already a market of over fifty tons a day for this carbonate. The company proposes also to make caustic soda and bicarbonate, the uses of which are familiar to most persons.

Germany, as a nation, has prospered largely through chemical factories and is recognized as the World's authority in these lines; but that great Empire does not contain or possess such vast or such varied resources of raw materials as Southern California alone. The eastern states import raw material in immense quantities from Germany and then ship the products to our coast. With the Oriental trade at our doors, as well as the trade of the great West, it is time that California awakened to the opportunities that lie before her. Southern California can become as famous for chemical products as Germany if she will but utilize the rare and valuable minerals of the arid region, "just over the hills to the north of Los Angeles."

The transactions of a stock exchange do not constitute mining. They are merely the reflection of slight benefits reaped by those who exist on the efforts of others.

The Great Southwest Number proves the position of Los Angeles as the greatest mining center of the West. Buy it, read it, and send it to your friends. Price 25 cents at the publication office, 120 N. Broadway, or at all news stands. Postage three cents.

Don't Drink Unless You Must; But If You Must, Get the Best

"CLAN MACKENZIE"



Scotch Whisky, as supplied to the British House of Commons, is one of the finest whiskies obtainable, and universally known as having a character peculiarly its own. It is one of the most popular brands in the world. On sale in all the principal Hotels and Bars in Southern California.

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CHOIX CONSOLIDATED

Strongly Fortified in the Heart of Mexico's Richest Mineral Belt

(CONTRIBUTED TO THE MINING REVIEW.)

THE CHOIX CONSOLIDATED Mining Company, Ltd., is a Los Angeles Enterprise backed almost entirely by Los Angeles men. The manner in which they have taken hold of things differs somewhat from the ordinary mining enterprise, in as much as the first requirement was that there should be sufficient ore on the property selected to insure the operation of a smelter. The men of which the company is composed felt that they could not afford to make any serious mistake not only on their own account, but for future investors. The idea was to make an investment in a mining and smelting enterprise—the outcome subject only to proper transportation and smelting facilities.

The first move was therefore, to send an engineer to thoroughly investigate that section of Mexico where the States of Chihuahua, Sinaloa and Sonora join, said to be the richest mining district in Mexico. His report was that the showing of Copper ore was very large and that the ore all carried good values in Gold and Silver; that water for mining, milling and power purposes was abundant and timber was to be had in the mountains at a low cost, but that transportation facilities were the great obstacle.

After this report the company authorized one of its members to further investigate the territory. He found the situation very much as the engineer had reported, and also found that there was good prospects for a railroad from the Bay of Topolobampo to the mines at an early date; that a large amount of high-grade ore had been shipped to smelters in Mexico, as well as to the United States and that there was ore enough to justify the installation of a smelter as soon as cheap transportation was to be had. It was therefore, decided that no mistake could be made in this selection. A number of the best properties were at once secured and later others have been added—all patented and no encumbrance.

The company has taken, no back steps, every move has been in the interest of all concerned and all have faithfully applied their efforts to make a success of the enterprise. The great drawback in putting its enterprise on a dividend basis has been the delay on the part of the railroad; that, however, will soon be in the past, as the Kansas City, Mexico & Orient railroad has been built from the Bay of Topolobampo, on the Gulf of California, to within a short distance of the mines and the latest reports are that this will be completed within the present year. The West Coast (Southern Pacific System) has built from Guaymas down the west coast of Mexico to Mazatlan during the last two years, crossing the

Orient Road about midway between the Choix Company's mines and the Bay of Topolobampo.

It is now the intention of the company to install a smelting plant of about 100 tons daily capacity as the first unit of a much larger plant. Estimates have been made on its cost and final bids are now being received from the principal manufacturers. The company intends to complete this plant at as early a date as possible.

The great advantage which the copper ores of this section have over many others is that besides being rich in copper they are also rich in silver and gold, the latter should pay the entire expense of mining and smelting, leaving the copper clear profit.

The Los Angeles office of the company is 516 Grand Bldg., and Mine Office at Choix, Sinaloa, Mexico.

MR. ISIDORE BERNARD DOCKWEILER.

Mr. Dockweiler, who is one of Los Angeles' most prominent attorneys, was born in this city on December 28, 1867. He received his education at St. Vincent's College, Los Angeles, from which he graduated with a commercial diploma in 1883, obtaining the degree of A. B. in 1887, A. M. in 1889 and the further honorary degree



I. B. Dockweiler.

of L. L. M. in 1905. He was admitted to the California bar October 11, 1889 and thereafter to practice before the federal courts.

On June 30, 1891, he was married to Miss Gertrude Reeve, which union has been blessed with 10 children.

Mr. Dockweiler has been active in civic affairs and has served as director of the Los Angeles Public Library since 1897 (with the exception of the term of 1899-01) and is now president

of the board, his present term expiring in 1911. He is also a trustee of St. Vincent's College and of the State Normal School at San Diego, Cal.

Mr. Dockweiler has taken an active part in the city, state and national politics and was the nominee of the Democratic party for Lieutenant Governor in 1902, and delegate to the Democratic National Convention in Denver, 1908.

He has been interested in the development of the mining and oil resources of the Southwest and is a holder in some of the larger companies operating on these lines, and is well versed in legal matters pertaining to the interests.

He is a member of the California Club, Newman Club, Chamber of Commerce, N. S. G. W., Knights of Columbus, Benevolent and Protective Order of Elks and Royal Arcanum.

His offices are at 500-505 Douglas Building, Los Angeles, Cal.

THE GOLD WONDER MINING AND MILLING CO.

On the edge of Death Valley, the western slope of the Funeral range of mountains, a Los Angeles company is developing what promises to develop into a good property, a group of eleven heavily mineralized claims owned by the Gold Wonder Mining and Milling Co. This property is close to Cow Creek Springs, where the company owns its mill site and water rights thus insuring abundance of water to operate at least fifty stamps.

The development work is being pushed as rapidly as possible with a view of exposing the ore-bodies sufficiently to warrant the early installation of a mill. The ore is free milling and can be mined at a low cost, as the bodies are extensive, (one of the ledges measuring eleven feet in width from wall to wall) and developed by tunnels. This ledge gives an average assay value of \$25.00 per ton, and there are a number of well-defined veins on the property which have given some remarkable values on the surface, the best assay having been \$300.00 per ton. The tunnel now being run is in 130 feet and in ore from the start. The company expects this tunnel to enter a large ore shoot, which outcrops on the surface in another seventy-five feet and this intersection will be at a depth of about 175 feet. The claims of the company surround the property of the J. & C. Gold Mining and Milling Co.

The company is incorporated under the laws of Arizona with 500,000 shares of a par value of \$1.00 per share. Fifty thousand shares have been placed on the market at 10 cents a share, the proceeds to go wholly into development, there being no salaried officers. The officers of the company are Mr. F. T. Purdy, president; Mr. C. F. Rimmel, vice-president; Mr. David V. Coony, secretary; Mr. C. E. Barber, treasurer; and directors Mr. T. Driscoll, Mr. C. S. Anderson, Mr. W. M. Eggers, Mr. E. C. Williamson. The offices are located at 312 Citizens National Bank Bldg., Los Angeles, Cal.

THE YELLOW ASTER

Southern California's Greatest Gold Mine. Record---Five and One-half Million Gold. The Calico District.

(CONTRIBUTED TO THE MINING REVIEW.)

Fourteen years ago three prospectors drove across the desert. Having been smiled on by the fickle Goddess of Fortune they discovered good "float." On tracing the float they located what is now the Yellow Aster Mine. Today, following the course taken by the three prospectors, one would enter the town of Randsburg; twelve hundred inhabitants, mostly employees of the Yellow Aster mines

day being John Singleton, President; Chas. A. Burcham, Vice-President; Dr. Rose L. Burcham, Secretary; Chas. H. Mooers, Second Vice-President, and Ward Chapman, Attorney. It is a close corporation. All the directors are residents of Los Angeles and hold a majority of the stock.

The property is located in Kern and San Bernardino counties and consists of 42 patented mining and water

The ore-body is about 600 feet wide from wall to wall.

The moneys expended for improvements (\$750,000) have installed a complete plant consisting of one 100-stamp plate amalgamation mill, one of thirty stamps, with engines and crushers, machine shops and all necessary appliances three water



MILLS AND SHOPS. RANDBURG IN DISTANCE

and their families. Continuing up the gulch one's senses would be lulled by sound as of a heavy surf—the dropping of one hundred and thirty stamps echoing from hill to hill.

The mine paid from the "grass roots." It has been worked continuously since its discovery, day and

claims and four on which patents are pending.

Of the \$5,500,000 bullion which has been shipped, over \$1,000,000 has been paid to the stockholders in dividends. \$750,000 has been used in installing mills, water plants, pipe lines, and machinery, \$750,000 has gone to develop ore bodies, the remainder expended for operating expenses.

The expenditure for development has uncovered and blocked out eight million tons of ore averaging \$3.00 a ton. These enormous ore-bodies are all above the mill level of the mine and are being quarried or "glory-holed." The cost of extracting and milling this ore has been found through years of experience to be about \$2.00 a ton, leaving a net profit of \$1.00 a ton.

Combining machine drills with the quarrying method and handling the ore by gravity makes the actual extraction cost about 75 cents a ton. The cost of carrying the extracted ore to the mills averages 10 cents a ton, crushing and milling cost 50 cents a ton, water, 25 cents a ton of ore; power, 20 cents and incidental expenses bringing the total to a \$2.00 average.

Below the mill level of the mine are large ore-bodies only partially developed. There are, however, shafts, tunnels, and drifts throughout the mine totalling over fifteen miles in length. The lowest depth reached below the mill level is about 600 feet on the dip of the vein. These operations have been confined to 1000 feet on the lode. The property of the company covers 4000 feet more of virgin mineralized ground on the lode.



MACHINE DRILL IN OPERATION

pumping stations pumping a million gallons of water daily and a network of twelve miles of railroad tracks with station engines and locomotives and three-ton ore cars carrying 500 tons of ore to the mills daily.

The water problem always a great factor in desert mining operations, has been satisfactorily solved. At one station there are two wells one 1700 feet deep, at another three wells, one 1500 feet in depth, which with shafts, drifts and impounding reservoirs, produce enough water to supply 1000 stamps.

For the years 1907-8 the net profit on operations was \$328,740.00, paid to stockholders and invested in improvements.

CALICO MINES.

In the Heart of the Old Calico Silver Zone.

The property of the Calico Mining Company is located in San Bernardino County, five miles north of Daggett. It consists of 21 quartz and 7 placer claims covering 1400 acres of mineralized ground.

There is water in abundance eighty feet from the surface, one and one-half miles from the mine. At that point the underground flow of the Mojave River is tapped. Water rights are covered by placer claims.

The company is most fortunate in having for its President and Manager, Mr. C. A. Burcham of the Yellow Aster Mining and Milling Company, of Randsburg, Cal., who has been instrumental in making that famous mine a big dividend payer. About \$20,000 has been expended in development work under his personal supervision and according to his plans for handling ore by gravity. This development has exposed large ore-bodies of good values. Careful computation shows that there is now in sight in the tunnels 30,000 tons of ore ready to be stooped out and averaging from \$6.00 to \$12.00 a ton, gold. On the surface there are 50,000 tons of ore which will average from \$4.00 to \$8.00 a ton gold.

The company will install a mill shortly and commence active operations.



ONE OF THE GLORY HOLES

night, with the exception of three months in 1903, due to labor troubles. In that time it has shipped to the United States mints over five and one-half million gold bullion.

The locators, John Singleton, Chas. A. Burcham, and Fred M. Mooers, incorporated under the name of the Yellow Aster Mining and Milling Company, the directors and officers to-

Great Gold Belt Mining Company

(CONTRIBUTED TO THE MINING REVIEW.)

Lying some ten miles north of Ben-
gal, in San Bernardino county, Cal., is
the property of the Great Gold Belt
Mining Company, a California cor-
poration, comprising 26 claims. The
original holdings of the company con-
sisted of five claims which had been
superficially prospected in the early

of William and Samuel Heath, who
are desert miners of many years ex-
perience, and W. R. Westover, an old
Colorado miner.

About 50 miles to the north of this,
which is called the southern camp,
the company owns four claims in the
New York mountains. The ore in



At the Great Gold Belt Mines, San Bernardino County, California.

days by old timers, the arrastra used
by them being still at the mill site
when the present holders acquired
the property. After careful prospec-
ting and exploration the company con-
tinued to acquire property until it
now owns the twenty-six claims men-
tioned and has started systematic de-
velopment work under the direction

both localities carries gold, silver and
copper values in paying quantities.
Molybdenum and tungsten have also
been found on the claims of the north-
ern camp.

The company has a well equipped
camp and an ample supply of water
for domestic purposes, originating on
the mill site. This is the only known

water for miles around and it is be-
lieved that further development of
the supply will produce sufficient for
milling purposes. A mill will be
erected by the company in the near
future and the work of adding ano-
ther producing mine to the record of
San Bernardino County will be rapid-
ly undertaken.

The company's offices are at 522-523
Grant Bldg., Los Angeles, Cal., in
charge of L. I. Plummer, President—
assisted by Dr. Samuel H. Baker a
heavy stockholder. The other officers
are: C. B. Barnes, vice-president;
Clarence G. Mann, secretary; Geo. A.
Mattern, treasurer; L. J. Ollier, J. L.
Benton and W. P. Bateman, directors.

MINES MANAGEMENT EXPERT.

Thousands of mining properties are
running at a loss, or lying idle as a
result of former losses, that could be
operated at a profit by proper man-
agement. This was the case with the
Cananea mines (now Greene-Cananea)
when J. Henry Wood, a Los Angeles
expert, put them on a paying basis
and caused them to sell for six mil-
lion dollars instead of only half a
million. If you want your property
taken off the "sick" list, get Mr.
Wood to take it in hand.

Ely has been producing copper for
about seven months. To the end of
January the Nevada Consolidated pro-
duced 9,398,118 pounds and shipped
7,176,200 pounds, and the Cumberland-
Ely produced 7,001,369 pounds and
shipped 4,964,148 pounds.

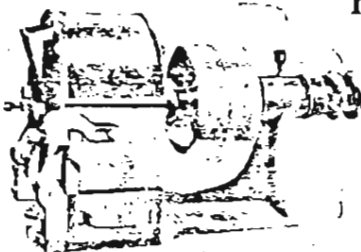
Braun's Disc Pulverizer

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For Power Only

An Absolute Necessity in every Modern
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Endorsed by all as the World's Standard

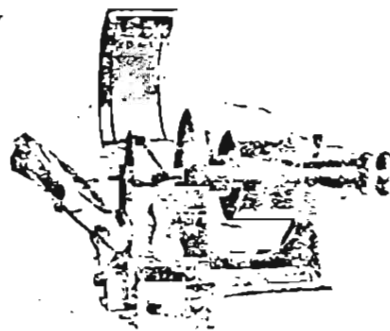


Here is the only power machine that will
pulverize an entire ore sample to any degree
of fineness, up to 200 mesh powder.

WITH ONE GRINDING

Will pulverize a 10 ounce sample to 100
mesh in one minute.

Instantly adjusted. Easily cleaned. Discs wear to place and are renewable.



Headquarters for Assayers' and Prospectors' Supplies, Balances, Glassware, Porcelain
Ware, Clay Goods, Scientific Books, Chemicals, Fluxes, Cyanide.



Send for Catalog "R 3."

F.W. BRAUN

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Los Angeles Mining Review

LOS ANGELES STOCK EXCHANGE

MA MAR 27

Institution That Has Weathered the Storms of Fifteen Years. Outlook for the Future is Bright.

(By L. F. PARSONS, Manager)

THE STORY OF THE DEVELOPMENT of the great southwest in mining, both in oil and mineral, would be incomplete without some reference to the Los Angeles Stock Exchange.

This institution as it stands today, is the result of fifteen years strenuous struggle for existence. Among several exchanges the Los Angeles Stock Exchange carries among its files the records of sales made and shares transferred in four or five different boards, which have sprung up like mushrooms, only to be absorbed as time went on, by the parent institution. Its present list of members comprises some of the most prominent firms of this city in the stock and mining business and its quotations are sought after by bond buyers and dealers in high priced industrials, oil and mining stocks in all parts of the country.

To attempt to estimate the value of such an institution to the mining and oil industry of this section would be farcal on the face of it. Through its quotations and the fact that it establishes an active trading market for the shares listed on its board, many a man of small capital has invested in oil shares and thus placed the companies in position to develop new territory; and in the payment of dividends, notices of which are always published by the Exchange, he has received handsome returns on his investment. The same is true of the development of mining camps, both here in our own state, and in mining fields in adjacent states and territories.

It is in this manner that stock exchanges aid greatly in the opening of new fields and the Los Angeles Stock Exchange, by the very fact that it has existed fifteen years, shows that, in so far as it has been able, it has guarded the investors' interests and frowned upon the unscrupulous promoter. No exchange can guard its boards entirely from the evils incident to stock gambling and the machinations of brokers who are working for today rather than for the best interests of the Exchange; and, again, it may be seen that by the law of elimination, the forty-five brokers now constituting its membership, must of necessity be among the best in the city.

As an evidence of the business done on the Exchange I give herewith a tabulated statement for the first two months and a half of the present year which shows the total business for January 1st to March 15th, 1909, to be \$1,094,977.20, and 968,672.83 shares, monthly average \$547,489.00. The gain in values on oil stocks alone for the past twelve months is some fifteen million and, if the present rate of increase in business is maintained, the Exchange will do six times as much business for the year 1909 as

January 1, 1909 to March 15, 1909.

Bonds.		Sales	Value
Name			
Associated Oil Co.	10	\$16,127.53	
Home Tel. Co.	6	4,470.00	
Home Tel., 1st Pfdg.	6	4,647.50	
L. A. Pac. 1st Con. Migs.	1	1,060.00	
Pac. Light & Power.	1	945.00	
Union Trans. Co.	6	5,671.25	
U. S. Long Dist. Co.	1	760.00	
Mission Trans Co.	1	975.00	
Total	31	\$34,556.25	
Bank Stocks.		Sales	Value
Name			
American Nat. Bank.	30	\$ 2,990.00	
Citizens National	25	6,825.00	
Farmers & Merchants.	10	2,850.00	
German American Sav.	55	17,435.00	
Globe Savings	1	112.00	
Home Savings	67	7,375.00	
Southern Trust	10	700.00	
Total	198	\$29,287.00	
Industrials and Public Utilities.		Sales	Value
Name			
Cal. Port. Cement.	10	\$ 750.00	
Edison El pfd.	100	8,416.25	
Edison El com.	100	6,465.00	
Home Tel. pfd.	1,046	58,462.10	
Home Tel. com.	450	6,396.25	
L. A. Inv. Co.	8,503	21,422.50	
San Diego Home.	200	6,427.50	
Santa Monica Bay Home.	135 1/2	3,890.40	
Sun Drug Co.	25,864	25,864.00	
U. S. L. D. Tel.	65	2,827.50	
Seaside Water	81	1,235.00	
Total	36,501 1/2	\$142,166.50	
Oil Stocks.		Sales	Value
Name			
Amal. Oil	615	\$ 55,325.00	
Associated Oil	4,976.82	194,075.86	
Central Oil	28,303	33,822.75	
Columbia Oil	2,080	2,336.00	
Continental Oil	500	175.00	
Elk Con. Oil	33,000	1,406.75	
Fullerton Oil	6,460	6,350.00	
Globe Oil Co.	120,075	24,680.65	
Mexican Pet.	1,083	1,577.90	
Olinda Land	93,000	19,002.50	
Perseno Oil Co.	500	160.00	
Rice Ranch Oil	6,647	7,605.20	
Union Oil Co.	3,074.50	312,784.27	
Union Prov.	639	63,852.00	
Union Petrol.	265	27,547.50	
Western Union	95	8,805.00	
Total	311,310.33	\$763,136.48	
Mining Stocks.		Sales	Value
Name			
Calumet & Ariz.	30	\$ 3,427.53	
Calumet & Hecla	40	27,010.00	
Butte Coalition	55	1,427.50	
Granby Con.	45	4,795.00	
Green Cananea	200	2,415.00	
Giroux Cop.	300	2,687.50	
Daisy Goldfield	1,000	650.00	
Copper Range	10	767.50	
Isle Royale	15	307.50	
La Salle Cop.	103	1,450.00	
Mohawk Cop.	20	1,390.00	
North Butte	50	3,957.50	
Nevada Cons. Cop.	120	2,275.65	
Old Dominion	45	2,526.25	
Osceola Cop.	20	2,660.00	
Quincy Cop.	10	915.00	
Trinity Cop.	135	2,185.10	
United Copper	40	567.50	
Utah Cons. Copper	30	1,350.00	
Goldfield Cons.	603	4,827.50	
Jim Butler	7,200	1,271.75	
Trump Cons.	400	82.00	
Clark Copper	105,867	20,129.82	
Furnace Creek	4,800	494.55	
Furnace Creek Ex.	600	15.10	
Kempian3 Cop.	1,000	10.00	
California Hills	104,400	7,432.50	
Consol. Mines	106,400	1,102.50	
Goldfield Storm King	1,000	5.00	
Johnnie M. & M. Co.	67,500	6,687.50	
Nevada Schl.	2,030	16.25	
New Era	1,000	12.50	
Searchlight M. & M.	1,000	250.00	
Searchlight Parallel	224,000	7,559.50	
Belmont	100	89.00	
Total	620,632	\$115,830.97	
Total shares		\$ 968,672.83	
		\$1,094,977.20	

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ORANGE BLOSSOM ANNEX GOLD MINING COMPANY

(CONTRIBUTED TO THE MINING REVIEW.)

The location by Fred C. Roble of the Orange Blossom vein in San Bernardino county, near Bagdad, on the main line of the Santa Fe railroad, will probably lead to the development and operation of a number of gold properties of great value. The zone is located in what is known as the Hikuron mining district and is approached by an excellent mountain wagon road. The two original free-milling mines now being operated on this vein system are known as the Orange Blossom and the Orange Blossom Extension. The former is owned and directed by John Denair, Norman E. Rich, W. J. Coapman and others.

Another company, organized by J. A. Darragh, T. H. Rosenberger, L. S. Read and Fred C. Roble and J. L. Medlin, (the latter two being the original discoverers of the Orange Blossom territory) has secured, by purchase and location, eight claims immediately to the south of those operated by the Orange Blossom Mining and Milling Company. The new company is known as the Orange Blossom Annex Gold Mining Company. It was incorporated July 6, 1908, under the laws of Arizona and is registered with the Secretary of State of the State of California; its capitalization is 1,000,000 shares, par value \$1.00; treasury stock, 500,000 shares. The stock is issued fully paid and is non-assessable and its price has recently been advanced to fifty cents per share.

The Orange Blossom Annex Company owns 4,500 feet of the Orange Blossom vein which can be traced for that distance on the surface. A new main double-compartment working shaft is being sunk and is nearing the 100-foot level, where a station will be cut and the vein cross-cut. The shaft will be continued to water-level as soon as possible.

The Annex has as good a surface showing as is shown in any part of the exposed Orange Blossom vein. After prospecting three chutes of good ore the company began the sinking of its double-compartment shaft on the middle chute. When a drift of sixty feet had been attained the management installed a Keystone gasoline hoist, built a tram from the collar of the shaft to the foot of the hill, 250 feet in length, and installed an engine to operate it. The ore taken from the shaft is free-milling and will average \$12.50 per ton. The Annex mine will be developed as quickly as possible with every probability of ultimately reaching the dividend-paying stage.

The free and rich ores of the Orange Blossom mineral zone will give an immense impetus to the mining interests of the desert and attract wide attention and investment to San Bernardino county. The officers of the Orange Blossom Annex Gold Mining Company invite the closest personal inspection of their claims on the part of investors. The standing of the directors and owners of the Annex is unquestioned, yet, it is desired that an examination of the physical characteristics of the company's properties be made as a matter of ordinary

precaution and as a matter of satisfaction to the owners.

Mr. W. H. Fraser, the mining engineer of Los Angeles, says: "I consider the Orange Blossom mineral zone one of the greatest in the West and believe that it is destined to become one of the largest producers of the yellow metal in California or in the country. The possibilities are so vast, the indications of permanency and values so marked, that it only remains for intelligent mining to take this wealth from its natural storehouse."

The offices of the Orange Blossom Annex Gold Mining Company are at 928-9 Central Building, Los Angeles, Cal.

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3-27-09

GOLD ACRES MINING COMPANY

The Gold Acres Mining and Milling Company operates in the Pinon Mining District, in Riverside County, California. Its properties are most favorably located about twenty-four miles, in a straight line, northeast from Indio. The company is incorporated under the laws of the Territory of Arizona with a capital stock of 1,000,000 shares of the par value of \$1.00, each fully paid and non-assessable. The Treasury stock has been placed upon the market in order to secure the necessary funds for further development and to equip the property with a plant of fifty tons capacity.

The properties of the Gold Acres Mining and Milling Company include 17 claims, four mill sites, an abundance of water, one five-stamp mill, one two-stamp mill and all machinery necessary to the present operation of the mines. The past production of the claims amounts in the aggregate to \$90,000. Two shafts have been sunk on the property—a perpendicular shaft 180 feet in depth and an incline 150 feet. The underground workings, which are in ore, amount to 2,500 feet. Sixty-seven assays have been made from samples taken from the different shafts, drifts, stopes and open cuts on seven of the claims. They show an average value in free gold of over \$20 per ton.

The ores are free milling. In his report Professor Mitchell, a well known engineer, who has closely inspected these properties says: "The necessary processes for the extraction of the gold are straightforward and simple. This is due, of course, to the conspicuous absence of minerals refractory in character. Straight-crushing, plate-amalgamation and the cyanide process are all that will be required."

It is the intention of the company to continue the development of the rich ore bodies already exposed, and to erect a plant sufficient of capacity to keep up with requirements demonstrated by development. The officers and directors of the Gold Acres Mining & Milling Company are men of large and practical experience and capable of successfully directing the affairs of the corporation. The officials are now engaged in securing the funds necessary to the immediate prosecution of development work. There are doubtless hundreds of good mining properties with all the characteristics which go to make up the successful dividend-paying mine through the southwest that are today seeking capital and which when successfully developed, will be a source of revenue to all concerned. It is often easier to find a mining property, that will pay largely upon a small investment than it is to establish an ordinary successful business undertaking. If the same care be applied to the management of a promising mining enterprise the percentage of failures will be less than in the general business world. The officers of the company are R. L. Little, President; R. J. Simpson, Secretary and Treasurer; Fred C. Semmek, Superintendent and Engineer; Frank G. Tyrrell, Counsel. Offices Suite 600 J. W. Helman Bldg., Los Angeles.

MAR 27

TUNGSTEN IN CALIFORNIA

Interesting Account of Discovery and Occurrence of Rare Metal.

(BY GORDON SUHR, SAN BERNARDINO, CAL.)

APR 3

MUCH MIGHT BE WRITTEN on the tungsten deposits of California, but, owing to lack of time, the subject is here treated in a far from exhaustive manner; hence, it is hoped that, not only will adverse criticisms be withheld, but that allowances will also kindly be made for the many shortcomings and sins of omission.

The writer has not, as yet, seen the statistics of tungsten production in 1908, but those of 1907 show that, in order of production, California was second, Colorado leading, and, it is worthy of note, that practically all the tungsten ore, hitherto mined in California, has been produced in the southern portion of the State. Seeing that the ores of tungsten usually occur in, or near, granitic rocks it seems strange that no deposits of any importance have, as yet, been discovered along, and on, the borders of the great granitic belt of the Sierra Nevada Range, which may be partly owing to the fact that tungsten ores, particularly scheelite, are frequently overlooked, although their unusual weight should attract attention, and it is also an extremely simple matter to test a mineral for the presence of tungsten.

A small amount of wolframite, or tungstate of iron and manganese, was taken out in a locality in the foot-hills of the Sierra Nevada mountains, about twelve miles north of Raymond, Madera county, where it occurred in bunches, up to two or three pounds in weight, in a glassy quartz vein, from four to sixteen inches wide, where exposed; the country rock being andalusite mica-schist. The claim was located for copper, and, although copper ore has been mined in the vicinity, and copper stains were noted near the vein, the only other mineral observed in the tungsten-bearing vein was the iron sulphide, pyrite. Copper minerals and stains are often associated with tungsten ores, but not even copper staining was seen in this particular vein. There is a large granite quarry at Raymond, and this tungsten property is likely no great distance from igneous rocks.

As far as the writer knows, practically no tungsten ores have ever been marketed from any locality in

California, outside of San Bernardino and Kern counties.

In point of production, the Atolia region has been by far the most important district in California. The mines were closed down for some months owing, it is said, to unsatisfactory market conditions, due to financial depression, but, according to report, operations have recently been resumed. The main tungsten workings are at, and near, Atolia, a small settlement in San Bernardino county close to the Kern county line, which has come into existence since the discovery of tungsten ore in 1904, and which is on the branch of the Santa Fe railway connecting Johannesburg with Kramer, being about five miles southerly from Johannesburg. The ore is scheelite, or calcium tungstate, and it occurs in massive form in bunches and seams in the veins, which latter vary in width from mere stringers to upwards of four feet. The vein-matter is quartz, altered country rock and calcite, the country rock being granitic, which microscopical examination of thin sections would probably show to be a granodiorite, or quartz monzonite, rather than a true granite. The veins, which are more or less parallel, strike easterly and westerly, dipping northerly from 40 to 80 degrees, and both vein-matter and country rock are in places stained a rusty color. The surface of the ground, at and near Atolia, is, for the most part, covered by a coarse reddish soil, to a depth of from six inches to several feet, prospecting being usually, at first, confined to tracing float and trenching, and, at one time, a plow was considerably used in doing assessment work.

The deepest shaft in the tungsten district is on the "Papoose" claim, one of the many owned by the Atolia Mining Company, and, at last accounts, this shaft, which follows the dip of the vein, was 250 feet deep, drifts having been driven at intervals of 50 feet. The writer, when in this region in September, 1907, was informed that all ore, which could not by sorting be brought up to 60 per cent. of tungsten trioxide, (usually mis-called tungstic acid) went through the mill at Atolia, and that the concentrates carried 60 per cent, and the sorted ore sometimes up to 70 per cent. of tungsten trioxide. The ore,

after passing through a Blake crusher, went into a Huntington mill, thence over Frue vanners, and although scheelite is a very heavy mineral, the loss in the tailings was usually large on account of sliming. All the mines, both gold and tungsten, in the region are dry, the water for milling and domestic use being delivered at Atolia by the Santa Fe Railway Company in tank-cars holding about 10,000 gallons. This water is brought from Hinkley, 46 miles from Atolia, and in the mill was settled, pumped back and used repeatedly. The ore had to be taken to the water or the water to the ore, an illustration of the truth of the statement that, providing they meet, if the mountain will not come to Mahomet, Mahomet must go to the mountain.

Scheelite also occurs outside of what may be called the Atolia belt, being found about a mile and a half north of Atolia in schists and gneissic rocks, and in the "Stringer" district, northwesterly from Atolia, and three miles southerly from Randsburg. The "Winnie" mine in this latter district, which was formerly worked for gold, has produced high-grade scheelite, which occurs in mica-schist, and in a dark, massive, fine-grained rock resembling a diorite to the unaided eye; in places portions of this rock seen by the writer were partly scheelite, the line between the scheelite and the rock being sometimes most irregular. Some of the ore in the "Sunshine" gold mine, adjoining the "Winnie," carries a little scheelite, as also does the gold ore at White's Camp, seven miles southwesterly from Randsburg.

The scheelite at Atolia, and in the vicinity, is massive and white, or light in color, and no wolframite or hubnerite has yet, to the writer's knowledge, been found in the region; in common with most tungsten localities, the world over, these deposits are usually richer at, and near, the surface than lower down.

North-east of Atolia, Tertiary volcanic rocks are much in evidence, but no tungsten ore has been found associated with them, and probably never will be. During the first nine months of 1907 tungsten ores sold for high prices, the demand being good, and at the time of the writer's visit, early in September of that year, the Atolia Mining Company, of which Messrs. De Golia and Atkins of San Francisco are the managers, had about fifty men on the payroll.

Another tungsten district is in San Bernardino County, seven or eight

miles easterly from Vontrigger, Vontrigger being on the Barnwell and Searchlight branch of the Santa Fe Railway, nine miles northerly from Goffs, a station on the main line, thirty-one miles westerly from the Needles. Here the tungsten ore occurs in veins in a granitic country rock in a comparatively level region, the vein-matter being quartz, which although white for the most part, is occasionally stained green by copper minerals. The veins vary in width from an inch or two, to three feet or more, the dip being from thirty degrees to almost vertical; the width of those portions carrying tungsten minerals in any quantity, so far as was observed, seldom exceeds twelve inches. The ore is hubnerite or tungstate of manganese, which occurs in blades and needles and more or less massive, and, while some of it may contain enough iron to make it wolframite, no scheelite was seen. The writer, by the way, has never failed to find some iron in specimens of hubnerite from various localities, which he has tested. The hubnerite in this district penetrates the quartz in all directions, and it was noticed that the quartz sometimes occurs in clear glassy crystals with spaces between them, indicating that in these cases both the hubnerite and the quartz were deposited in pre-existing cavities. Some of the veins carry silver and gold as well as tungsten, and the hubnerite when first discovered was pronounced "ruby silver" by some shining lights in the mineralogical line.

Much of the tungsten ore in this region would require concentration before shipment, as, on account of the frequent occurrence of the hubnerite in bladed forms, rather than in bunches, a good deal of the ore could not be brought up to 60 per cent of tungsten trioxide by hand sorting and cobbling. Owing to the buncy, pockety, and more or less erratic manner in which the ores of tungsten usually occur it is often extremely difficult to estimate percentages, for a vein may be "highly metalliferous" in some places and as poor as Job's turkey in others, a few feet distant. Little depth has, as yet, been attained on any of these tungsten veins, and, from what the writer could see in the course of a hurried examination, the deposits will probably decrease in richness with depth.

Tungsten ores also occur in the Clark Mountain district, in the Ivanpah region, San Bernardino County, about twenty-two miles westerly from

Nipton on the Salt Lake Railway. Here wolframite and scheelite are found in quartz veins, the country rocks being granitic, and the sulphide of antimony, stibnite, also occurs in the veins in places, which latter fact is of interest on account of similar associations elsewhere. In the Hillgrove district, New South Wales, for example, the association is at times so close that the adhering antimony sulphide has to be broken off the scheelite with hammers, in preparing the latter for market. Much of the scheelite in the Clark Mountain district has a grayish or brownish tint, being, as a general thing, considerable darker than that at Atolia, and, as both the wolframite and the scheelite occur more or less in bunches and seams, some separation of the higher grade ore can be made by hand.

Scheelite has been mined in the Amalie region at irregular intervals for some years, this district being in Kern County about thirty-five miles easterly from Bakersfield, and about fifteen from Caliente, on the Southern Pacific Railway. The Tehachapi Mining Company operate scheelite mines at Paris in this section, and, at last accounts, one of their shafts was 275 feet deep and they were planning a tunnel to intersect the vein 500 feet from the surface. The writer has never visited this region and is unable to give details regarding it.

In the New York Mountains, San Bernardino County, five miles west of Barnwell, hubnerite occurs in a quartz vein, which also carries small amounts of galena and iron and copper pyrites; the country rock is a hard, fine-grained mica-schist, and the vein, which is almost vertical, and from twelve to eighteen inches wide, crosses the nearly horizontal cleavage of the schist, evidently following one of the numerous joint-planes. The prospect is little developed, and although there is some fine, clean tungsten ore on the dump and some good bunches in place at and near the surface, this property will never, in the writer's opinion, be an important producer of tungsten.

Tungsten ores are found in other localities in California besides those mentioned, one occurrence, of scientific rather than commercial interest, being about sixteen miles northwesterly from Victorville, San Bernardino County. Scheelite occurs here at, and near, the contact of limestone and mica-schist associated with carbonate and silicate of copper and iron trioxide. No high grade scheelite was

seen anywhere in the region, and no outward and visible sign of it was noted in any of the rock, in fact only on pulverizing and panning some samples, and observing a white concentrate, was the presence of scheelite suspected. Some small outcrops of pegmatite were noticed in the schist, but not in the limestone, and possibly this pegmatite may have been the source of the tungsten.

In the case of many tungsten prospects much of the ore requires concentration before marketing, and, at present prices, it would not pay to send it to mills, nor is it in sufficient quantities to justify the erection of concentrating plants on the properties, hence, as will readily be seen, higher prices would naturally stimulate production, not only in California, but in the Southwest in general.

Some deposits would be soon exhausted, but others would likely be discovered, as prospectors are becoming increasingly familiar with tungsten ores, and it is only within the last few years that they have been on the look-out for tungsten minerals to any extent.

Tungsten, although widely distributed, is not an abundant metal, having hitherto been found in no one locality in any country, in what may be called large quantities, and, in spite of the high prices, prevailing during the greater part of 1907, the world's production in that year only amounted to about 5800 short tons of ore, containing 60 per cent of tungsten trioxide. Of this quantity, the United States contributed 1640 tons, which, at 60 per cent. of tungsten trioxide, would be equivalent to some 780 tons of metallic tungsten, and, as a striking comparison, it may interest many people to know that the weight of pure silver produced in the United States in the same year, 1907 was almost two and one-half times as much.

The amount of ore produced by even the best tungsten mine would be insignificant, were it say an ore of lead, and, obviously, it would be the height of folly to condemn a copper mine solely because it could never furnish copper approaching in quantity the iron in one of the great deposits in the Lake Superior region; hence, tungsten deposits can only be compared to other tungsten deposits, for, in comparison with many mines of the more abundant metals, they are small affairs. Were tungsten more plentiful, prices of course would be correspondingly lower, owing to the

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operation of the inexorable law of supply and demand. In this connection it is interesting to note, that, from what the writer can learn, the "Papoose" mine at Atolia, has hitherto produced more tungsten than any other one mining claim, of like size, west of Colorado, and, undoubtedly, has furnished more ore than many individual claims in that State.

Tungsten is principally used in the manufacture of high speed steel, which may contain from five to seventeen per cent. of tungsten, and as this steel retains its temper even when approaching a red heat, a lathe can be driven at a much greater speed, in fact up to six times as fast, as when the lathe tools are made of ordinary steel.

The electrical resistance of tungsten increases with increasing temperature; so that the tungsten electric incandescent lamp is very efficient, requiring much less current per candle-power than the common carbon lamp, but, as the filaments are very thin, a pound of metallic tungsten would furnish a great number of lamps; hence, this industry has little effect on market prices. Recently tungsten lamps were put to a novel use as some of the street-sweepers in Chicago were supplied with them, the lamp, which is small, being attached to the helmet. The current is furnished by a battery of the two volt. six ampere type which is designed to keep the lamp alight for ten hours, after which it is re-charged; the battery is carried in the hip pocket and the whole outfit only weighs about three-quarters of a pound. The plan of converting the sweepers into human glow-worms was adopted in order that the drivers of vehicles might see the men in time to avoid them, for, needless to say, in the event of a man being struck by a swiftly moving automobile, the former is very apt to come off second best; the combat being most unequal. Thus it will be seen that the tungsten miner in California, and elsewhere, may be instrumental in saving the life of a street sweeper in Chicago, which almost gives the mining of tungsten a humane aspect.

In conclusion it may be said that it is most unlikely that all the tungsten deposits in California and the Southwest have already been discovered, seeing that much of the country has been by no means thoroughly prospected, and that, until the last few years, tungsten minerals received little attention. The existence of

was not generally known before 1904, and the presence of tungsten in some other localities was not reported until a much later date, while past experience teaches that when there is a strong demand for any substance, the need may be supplied in part from unexpected sources.

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Hawthorne Dividend.

The payment of a \$25,000 dividend by the Hubbard lease on the Lucky Boy group of silver-lead claims in the vicinity of Hawthorne, Nevada, has emphasized the fact that another bonanza camp has been opened in the state. The rush from Goldfield has equalled the rush of several years ago, when the Bullfrog district first began to command attention, and several large deals have been made as a direct result of the phenomenal success which has met the efforts of the original lease. It was said that \$900,000 had been offered by a Mr. Collins, of St. Louis, for the Lucky Boy group, and refused. This, however, has been authentically refuted by both reputed sides of the deal. It is evident, in spite of that fact, that one of the highest grade silver-lead ore-bodies in the history of the West has been opened up. Mr. Collins is interested in the Mitchell & Fairchild lease on the Lucky Boy, which has been fully financed and he is also said to have paid the owner, J. H. Miller, \$60,000 cash for a thirteen months' lease of a strip of ground twenty-two feet wide, lying between the Mitchell & Fairchild lease and the famous Hubbard lease, which is said to be producing \$20,000 a day. Both the Mitchell & Fairchild and Collins' leases will be supplied with hoists at once and they are now on the way from Goldfield. Over 150 head of horses are hauling ore from the premier lease and more are being brought in from Rawhide and other points. A new townsite, called Lucky Boy, has been established near the big mine and buildings are being erected as fast as material can be rushed to the scene.

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Bullion From Skidoo.

The local management of the Skidoo Mines, of which Mr. "Bob" Montgomery is president and general manager, has just shipped two bars to the San Francisco mint of a value of \$10,000 and representing the clean-up from the plates of ten stamps for the first half of March. The additional five stamps, have been working on lease ore since February 15 and it is

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expected that they will be so employed for from thirty to fifty days more. In addition to the plate recovery, about \$2000 will be produced from the cyanide plant, which is now in full operation. Two New Standard concentrators cleaned up five tons of \$400 concentrates in a thirty-day run. The third table is working on lease ore with equally good results.

Orange Blossom Extension.

The suspension of work upon the Orange Blossom Extension mine, adjoining the Orange Blossom, in San Bernardino county, which was announced last week, does not come as a surprise to mining men who had been kept advised of developments. It is merely another case where expensive milling facilities have been provided before the extent and exact value of ore bodies had been ascertained. The work of exploration had been allowed to run behind in a marked degree and, as early as six months ago, it was predicted that the management would sooner or later be compelled to acknowledge its mistake. While it is to be regretted that the débouement has come to pass, it by no means proves that the property does not possess real merit. When more intelligent mining is brought to bear it is believed that the property will yet develop large bodies of pay ore and, for the good of the entire industry, it is to be hoped that the day is not far distant.

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HART CONSOLIDATION.

Goldfield Big Chief and Hart Consolidated Are Merged.

At a special meeting of the Goldfield Big Chief Mining Company and the Hart Consolidated Mining Company, held at Phoenix, Ariz., last week, resolutions were passed authorizing the board of directors of each company to complete the merger arranged some weeks ago. The name of the Goldfield Big Chief Company was changed to the Big Chief Mining Company and the assets of the Hart

Consolidated will be taken in for a consideration of 350,000 shares of its treasury stock. The capital stock was increased from 1,000,000 dollar shares to 1,650,000 and the principal place of business, outside of Arizona, was changed to Hart. Mr. H. S. McCallum, vice-president of both companies and Mr. E. W. Everson, of Providence, R. I., were in attendance at the meeting. It is understood that a large fund has been provided for development purposes and that deep work will be undertaken without delay. The consolidation will mean

much for the general welfare of Hart and it is expected that the interests identified with the merger will shortly complete arrangements for the erection of a large customs milling plant.

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PRECIOUS METALS COMPANY.

Local Company Acquires Property at Seventeen Mile Point.

The Precious Metals Development Company has just been formed in this city to acquire the Eaton group of claims at Seventeen-Mile Point,

near Silver Lake, on the Tonopah & Tidewater Railroad. Mr. Dick Ferris, the well-known actor is president; Mr. J. L. Witney, formerly manager of the MacCracken mine, Arizona, vice-president and general manager and Mr. H. D. Ryus, formerly manager of the White Steamer garage, secretary and treasurer. Arrangements have been made for an extensive campaign of development at the property and a four-mile pipe line has already been surveyed. The property was recently acquired after thorough examination by Mr. J. L. Witney. The

company is also said to have acquired the rights to the Cochrane stamp mill machinery and will enter into the manufacturing business in this city. It is claimed that a complete two-stamp mill can be erected for less than \$3,000 and it is expected that a large business can be worked up among smaller properties too far removed from transportation to permit of economical shipment of ore. The deal by which the Eaton group was secured by Mr. Witney was negotiated by Mr. W. W. Hite, formerly ad-

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Good Values Reported From Lower Levels.

As the Mining Review goes to press it is learned that the superintendent of the California Hills, in the Gold Bend district, San Bernardino county, has reported the discovery of good ore on the 200-foot level. Samples had not yet been assayed, but the material is said to be identical with the high-grade mined at the 60-foot level. The rake of this shoot would carry it to a point near the present face on the 200 and so the management believes it has been struck on the dip. Values at the upper point ran from \$60 to \$150 gold.

APR 17 HAWTHORNE.

Lucky Boy Bonanza Pays Three Thousand Daily Royalty.

Mr. C. F. Sloan, well known as the former owner of the Sloan lease on the Jumbo claim at Hart, and a brother-in-law of J. H. Miller, one of the fortunate owners of the Lucky Boy bonanza near Hawthorne, Nev., has just returned to Los Angeles from a trip to the property and brings back information that is almost incredible. He says that the Hubbard lease is now shipping enough ore to produce a royalty of \$3000 a day upon a 25 per cent. basis and that twenty 8-mule teams are engaged in hauling the product to the railroad at Thorne, seven miles distant. Mr. Sloan exhibits some remarkable samples showing grey copper and stephanite and says that the average of the ore so far shipped is nearer \$200 than \$100.

The formation in which the ore-body lies is granite on the hanging wall side and lime on the foot. J. H. Hubbard, one of the original owners of the Combination mine at Goldfield, is the moving spirit in the lucky lease and is taking out ore through the Lucky Boy tunnel from the Mountain King claim. Under his direction, a shaft, inclined with the dip of the ledge, was sunk to a depth of 400 feet a distance of over 300 feet each way. It is said that the entire workings show a continuous body of high-grade ore which, figured conservatively, will average two feet and is worth \$100 a ton. Upon such a basis over \$2,000,000 worth of ore is already exposed and there is no present intimation that the ore-body's limits have been reached. Mr. Sloan says that it is one of the most remarkable strikes in the entire history of Nevada and that the stories which have reached the outside world in the past few weeks have been, if anything, too conservative. He will leave for Hawthorne within a few days and expects to identify himself with his brother-in-law, Mr. J. H. Miller.

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p 17 DEATH VALLEY.

Action Brought to Foreclose On Keane Wonder Mine.

As a result of the failure of the State Bank and Trust Company and the entanglements which it caused in all directions, it is probable that stockholders of the Keane Wonder mine, at the upper end of Death Valley, will be finally robbed of their stock investments by foreclosure proceedings which were clinched in San Francisco on Thursday last. All the

(inc.) cluding mine, mill, water rights, real estate and improvements, are confiscated to satisfy a trust deed given by the Keane Wonder Mining Company to the Frances Mohawk Mining & Leasing Company and J. F. Peck, the attorney for T. B. Rickey, former president of the bank, to secure notes aggregating nearly \$200,000. These notes were originally given to the State Bank & Trust Company and by that institution transferred to the Frances Mohawk Mining & Leasing Company to secure its deposit on hand in the bank at the time of the failure. The matters which led up to an arrangement which declared the Frances Mohawk Company a preferred creditor to this amount have created a great deal of adverse comment in Goldfield, but it is not believed that anything can now be done to protect stockholders who have invested money in good faith. The property is producing regularly at a satisfactory rate and it is known that the capital used to place it in its present shape was advanced by the bank practically without security. It appears, however, that D. Mackenzie, representing the Frances Mohawk Company, one of the largest depositors, forced a settlement directly after the failure of the bank and secured Keane Wonder stock as partial collateral for the amount on deposit to the company's credit. The whole transaction appears to reflect little credit upon the State of Nevada and less upon the former management of the defunct bank.

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INYO COUNTY. p 17

Keeler Smelter of Four Metals Company Blown In.

The Keeler smelter of the Four Metals Mining Company was blown in about a week ago and is said to be running satisfactorily with a capacity of 150 tons a day. The company owns the famous old Cerro Gordo mine southeast of Keller and has been steadily developing for the past few years with excellent results. The Lucky Jim mine near Darwin, formerly owned by the Reddy estate of San Francisco, and which was located in 1871 to 1872 by James Reddy and

the New Coso Mining Company, of which C. T. Fitzhugh is president, and it is said, has over 300 tons of good ore ready for shipment to the smelter. This will be delivered at once and the management believes that it will be able to maintain shipments of 50 tons a day commencing within the next thirty days. The value of the material now on hand is given at \$89 a ton. The property is said to have produced \$3,000,000 above the 300-foot level in early days.

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HART.

Jumbo Shows Large Ore-Body At 100-Foot Level.

Upon the authority of Mr. Mack Foster, one of the owners of the Jumbo mine at Hart, Cal., it is said that the crosscut on the 100-foot level has exposed twelve feet of ore that will average between \$40 and \$50 a ton. The south drift is out about eighteen feet and the same character of ore is there being encountered. The face shows a number of very rich seams which run well up into the hundreds of dollars per ton. Over 100 tons of \$40 ore have already been broken down. The management will conduct exploratory work upon the 100-foot level before opening up the 200-foot level, where a forty-foot crosscut has already been run.

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p 18 SKIDOO MINES.

Production for March Over Twenty-
Two Thousand Dollars.

For the first half of March the Skidoo Mines shipped to the Selby refining works bricks valued at \$10,185.09, while the cleanup from the plates for the second half reached \$9,388.98. The cyanide recovery for the entire period was about \$1,500 and the concentrates, which have not yet been shipped, are estimated at \$1,500. The property thus produced over \$22,000 last month and it must be remembered that only ten stamps were used on company ore. The other five stamps were dropping on ore from the Shackett lease and a clean-up of \$8,500 has just been made. Ore from the Hoyt Brothers lease is now being treated. For the first half of April the clean-up from the company's ten stamps was \$9,025.

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EATON GROUP. p 19

Silver Lake Property Shows Good
Values At Hundred Feet.

According to Mr. Jno. L. Whitney, former manager of the McCracken mine, Ariz., who is now manager of the Precious Metals Company, the Eaton Group, near Silver Lake, Cal., which has just been acquired by the company, shows excellent values at the 100-foot level. There are three feet of quartz which runs between \$30 and \$40, while a ten-inch streak runs up in the hundreds. The company will immediately instal a Cochran combined stamp mill and crusher, which is now being manufactured by the Cochran-Jackson Engineering Company in this city. Mr. Dick Ferris, the well known actor and Mr. H. D. Ryus, former manager of the White garage and one of the leading automobilists of California, are associated with Mr. Whitney in the venture.

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HAWTHORNE. 4-27-09
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Lucky Boy Lease Pays Dividend of
\$50,000.

The Hubbard lease on the famous Lucky Boy property near Hawthorne, Nev., has just declared a dividend of \$50,000. This makes the second disbursement this month, a dividend of \$25,000 having been declared on the first. The last dividend is payable immediately and it is said that the treasury of the company is in such shape as to insure many more payments of equal amount in the near future. It is said that 250 men are now on the payroll and that the silver values at the 400-foot level show some appreciation with less value in lead. A pipe line of fourteen miles is being completed to supply the camp with good water.

KEANE WONDER.

Sale of Company's Assets Stopped by
Court Injunction.

The advertised sale of the assets of the Keane Wonder mine at the upper end of Death Valley did not materialize as advertised last week owing to the application and granting of an injunction in San Francisco. The action was brought by Mr. Earle R. Clemens, proprietor of the Rhyolite Herald, but it is believed in some quarters that the real instigator of the proceedings is Mr. T. B. Rickey, of the defunct State Bank & Trust Company. The restraining order issued by the court leaves matters in statu quo and an accounting is to be made. It is difficult to foretell the outcome of the litigation.

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KERN COUNTY'S PAST 1909

History Goes Back to the Fifties. Second in Value of Mineral Output Among Counties of California. Leader in Oil Production

(COMPILED BY C. S. LONG, OAKLAND, CAL.)

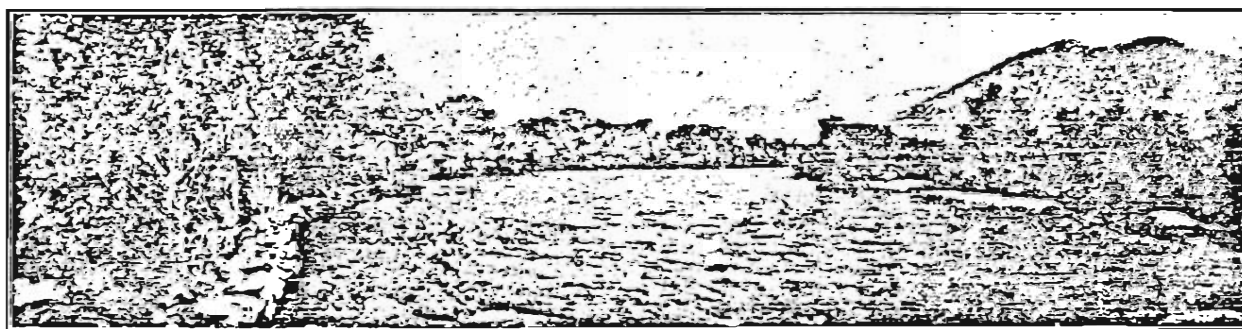
KERN COUNTY has quite a remarkable record as a mineral producer, but its future will be much greater than its past. It has an area of 8,100 square miles and extreme variety of physical features, including geological formations, topography, mineral products and climate. It spans the upper end of the San Joaquin valley, holds the southern end of the Sierra Nevada range, includes a portion of the Coast Range in its western end, and to the south and east of the Sierras it incloses a large section of the Mohave desert. Within recent years the Randsburg gold district on the desert has proved rich and become famous, and in the Yellow Aster, Kern county possesses one

branch of mining. Quartz mills, 9; arrastras, 25; aggregate cost of machinery, \$115,000."

In Kern county the Sierra Nevada range swings westward to end in the mountain jumble that, in Southern California connects this and the Coast Range, and the auriferous belt of the Sierras attends the southern course and westward swing of the range through Kern county, where the rich San Joaquin valley finds its narrow, southern end. Up from the valley twenty to thirty miles, at altitudes of 2,000 to 4,000 feet, is a great mineral region, chiefly characterized by auriferous quartz veins in granite formations, which displays, in both surface prospects and in developed mines,

the following descriptive account is quoted from the Havilah Courier:

"The mineral belt carrying the system of veins here pursues a northwest and southeast direction. It is about 40 miles wide and 70 miles long, the town of Havilah being situated near its center. There are many other mines in the country situated in smaller belts which bound it on the east near Sageland and on the west at White river. Within our area the bulk of the more extensively developed mines are located. The entire belt is cut and ribbed with gold-bearing veins which cut its course diagonally, running generally in an easterly direction. The vein matter is principally quartz, very little foreign



KERN RIVER, ABOVE KERNVILLE

of the greatest gold mines in the State. The oil fields of Kern river and the Coast Range slope have proved to be among the remarkable ones of the world. The county has a long list of economic minerals and in 1907 its mineral output was \$6,092,606, making it rank second among the mineral-producing counties of California.

But the western Sierra slope has cut small figure in the important mineral development of Kern county in recent years, though for many years the county's mining industry was confined to the mineral belts of that slope. Kern county is found to cut a prominent figure in the literature of California's mining industry in the decades of the fifties, sixties and seventies. In Langley's California Register for 1858 it is said: "That portion of this county in the vicinity of Kern river is represented to be one of the richest quartz regions in the State and will yet become most attractive to those acquainted with that

values which would occasion a bigrock being discovered in it. Its walls mining excitement today if discovered for the first time and further glided by the exaggerations which attend all new discoveries.

These mines were distributed through a wide belt running southward from the northern boundary of the county at altitudes of 2,000 to 4,000 feet and curving southwesterly to the neighborhood of Tehachapi Pass. On the north is Kernville and Keyesville and to the south is Callente. These and other places between them, notably Havilah, were once noted ones and Havilah was long ago the county seat. This general auriferous belt lies 15 to 20 miles from the floor of the valley and 40 to 50 miles from Bakersfield. Early government reports and various reports of the State Mineralogist in later years describe this region as one characterized by rich gold quartz veins

In Raymond's report on the Mineral Resources of the United States west of the Rocky mountains for 1872,

are always granite or slate. The ledges, though almost invariably well-walled, are not massive, but in keeping with the general average width of all gold bearing ledges on the coast, varying from 2½ to 6 and 10 feet. The Big Blue lode at Kernville is between 60 and 70 feet thick. They pitch at angles of from 35 to 80 degrees. Skipping a few miles over an unprospected country brings us at once to the once famous Keyesville mining district, which was abandoned some years ago in consequence of the old cause—bad management and inexperience. A few miles to the right of Keyesville is Kernville, which has now all of its stamps in operation on rock of a very rich grade. Crossing Kern river to the Havilah side, the mines in this large belt continue, the first mining district being the Washington, which includes Havilah with its numerous mines, and extends south to the Callente mining district, a distance of thirty miles. The leads

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mostly run east and west in this portion of the belt. Next to this comes Erskine creek, where the lodes do not seem to obey any rule, but run at random in net-work style. The most of the rock in this district is of the best high-grade ore and turns out under the stamps \$20 to \$38 per ton. The deep mines of the country which have been fairly tested develop an increase in the width of the ledges."

its great size and the vast amount of good milling rock which it can furnish. The principal mine upon it at present is the Sumner. In this mine I found the lode underground to be 84 feet between the walls. The hanging wall is granite, the foot wall is slate, between which and the vein lies a zone of clay 15 feet in thickness. Of the 84 feet of quartz, 42 feet, two zones or pay streaks of 35

good road and on a down grade, costs but a few cents per ton. The old mill is the only one running, as the new one is not yet finished. The old Sumner mill contains 16 stamps of 650 pounds, dropping 7 to 8 inches 85 times per minute, and crushing 20 tons of quartz, or 1.19 tons per horsepower daily—a moderate efficiency."

The following extract showing the



ENTRANCE TO 2000 FOOT TUNNEL OF SUMNER MINE, KERN COUNTY

Raymond's report for 1875, as U. S. Commissioner of Mineral Statistics, thus described the Sumner:

"About eighteen miles from Havilah, on the main road, is the town of Kernville, once known to the pioneers as Whiskey Flat. It is picturesquely situated on the rushing stream of the Kern river in the banks and the bars of which, and along numerous small mountain gulches tributary to it,

feet and 7 feet respectively, consist of pay rock. The narrow zone is richer, but the average yield of the whole material of the two is about \$18. At the other end of the vein, on the extension known as the Nellie Dent, the vein is 200 feet wide between the walls, but carries wholly low grade ore, yielding say, up to \$10 or \$12 per ton.

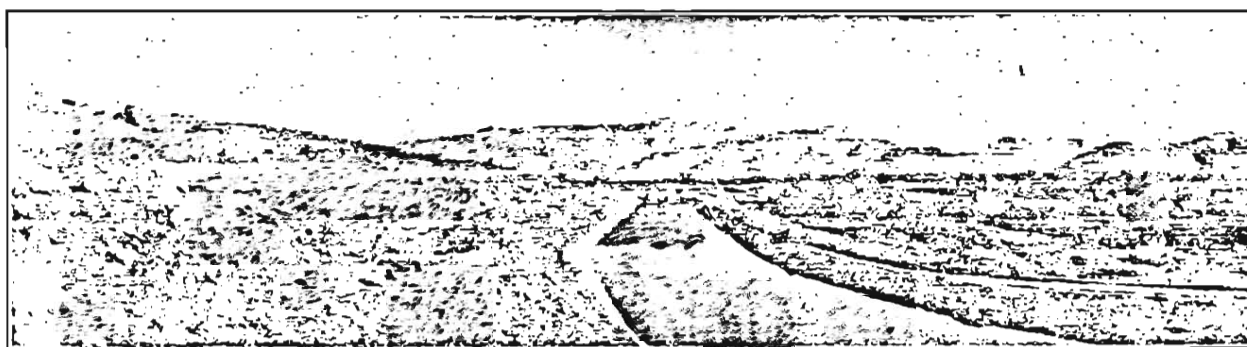
"The Sumner is opened by an adit and crosscuts 146 feet below the high-

cost of mining and milling in 1875 is from:

"Mineral Resources West of the Rocky Mountains, being the seventh annual report of Rossiter W. Raymond, United States Commissioner of Mining and Mining Statistics, Washington.

"List of Mines in California producing over \$100,000:

"Idaho, Eureka, Empire, Providence, Black Bear, Plumas, Eureka, Sierra



HEAD GATE AND CEMENT CANAL, KERNVILLE, KERN COUNTY

placer mining was rife and profitable in that period, a score of years ago, fondly called "early times" by the fast living population of the Pacific Coast. Only a few diggings, on a small scale, remain to bear witness to the golden traditions of the past. The present hope of Kernville lies in quartz, and particularly in a mammoth vein known as the Sumner or Big Blue. This vein has been traced for some two miles in the hills on the north side of Kern river.

"The value of the main lode lies in

est surface croppings. Two shafts are being continued below the tunnel to open up a new level. The richest ore in the upper level has been removed so far as the ground is opened, but a large amount of lower grade ore is still standing, and there are some 15,000 tons of third class ore (\$12 to \$15 per ton) lying on the stulls in the mine. This can be treated with profit when the new mill is completed.

"The mills are situated on the banks of the Kern river, about a half mile from the mine. Hauling by a

Butes, Hites, Amador Consolidated, Keystone, Klamath, Chariot, and Sumner, (Kern Co.), No. tons worked by latter, 5,000; average value per ton, \$40.00; total bullion product, \$200,000.00; No. of stamps, 16; cost of milling per ton \$2.00; cost of mining per ton, \$2.50; No. of men employed 30."

This report quotes a correspondent, who says that "the Sumner Mining Company is doing a great deal of work. It employs 170 men. The 80-stamp mill, which is the largest and most complete on the Coast, is in

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constant operation, crushing from 100 to 120 tons per day. The mine has been opened along the vein for 1,000 feet, in part at 160 feet depth, and the vein measured 30 to 40 feet in thickness. A depth of 200 feet has been reached, and prospects improving." Mr. Raymond also adds: "The new mill was run from June to the end of the year on very low grade ore,

which has yielded not quite \$1,000 a day. The bottom is in ore of high average, and the water once controlled, large returns are expected."

In Burchard's Report for 1881, published in 1882, the director of the mint says: "Kern County, in the southern part of the State, and lying east of the Coast Range, has some excellent quartz mines, the chief of which is the Sumner at Kernville, in the Northeastern part of the county, on the headwaters of Kern River. This mine has an 80-stamp mill, one of the best and most costly in the State."

Burchard's Report for 1882, published in 1883, says, regarding the Sumner: "The ores from these various claims, which are all under one management, vary from \$5 to \$300 per ton. A tunnel 800 feet in length drains all these mines to their present depth. Another tunnel, 2,000 feet in length, is being run to drain them 100 feet deeper than at present.

The 160-foot level on the Big Blue has kept 40 stamps running regularly for the past eight years."

Burchard's Report for 1883, published, 1884, says: "The drain tunnel, over 2,000 feet in length, has been completed to the Big Blue mine, and has drained to its level the two parallel series of veins back of the Big Blue. Work on the mines has been prosecuted with vigor during the past year, and the yield has been large. Sixty of the Sumner Company's stamps have been kept in operation for this mine. In November 1883, the steam hoisting works were fired. The fire is still burning, and eating out the supports of the Big Blue Mine."

The twelfth report of the State issued in 1894 by J. J. Crawford, State Mineralogist, says: "On the west bank of Kern River, about one mile north of Kernville, the Sumner is situated. It is a fissure vein which extends through granite and slate formation, and has a general course of north 20 degrees east and dips westerly, and can be traced four miles, or

from the southerly extension of the Nellie Dent to the northerly limits of the Commonwealth. The apparent outcrop varies from fifty feet to one hundred and fifty feet, and it is said that shoots over fifty feet in width have been struck under ground. Two tunnels have been run to strike the vein. The longer commences on the west bank of Kern River about two hundred and fifty feet below the outcrop, and is about two thousand feet in length, principally in granite rock, with a little slate just before reaching the vein.

A few feet below the vein there is a clayey gouge about four feet in thickness, and then eight feet of barren silicious rock, which constitutes what is regarded as the foot wall of the main lead, and which at this point is about one hundred and twenty feet in width. The hanging wall appears to be altered slate. It is reported that this mine has produced a large amount of gold, and an examination of the property leads to the conclusion that there must be vast quantities of pay ore in the mine which are yet untouched.

"The only work which has been done on these properties for many years is a little tribute working."

THE CATTON FURNACE.

Editor Mining Review,
Los Angeles, Cal.:

Dear Sir:

During the past sixty days many inquiries have reached me from California concerning the Catton furnace, its cost of construction and operation, as well as a comparison of costs between it and the Fink furnace.

The latter question has been fully answered in an article appearing in the Mining World, of Chicago, April 10th, 1909.

As to the former questions, the following points have been proven at the public demonstration made at the experimental plant at West Seattle, Wash.

- (1) The cost of fuel per ton of ore smelted will not exceed 35 per cent of blast furnace cost.
- (2) The separation made is at least equal to that made in any blast or reverberatory furnace.
- (3) The concentration obtained is equal to that of blast furnace practice.
- (4) No flue dust is made during smelting.
- (5) The loss by volatilization is practically nil.
- (6) It can, without danger of

freezing, maintain a 50 per cent silica slag.

It is in the use of the oxidizing flame in desulphurizing the ore at one end of the furnace while the reducing flame is smelting at the other that much of the economy of the practice is maintained.

I estimate conservatively that the cost of smelting properly fluxed ore in a smelter of 50 to 75 tons capacity, properly equipped for handling the material, would not exceed \$2.00 per ton.

The cost of constructing a 50-ton furnace at or near seaboard will be about \$6000.00 and the cost of smelter complete with ore bins, and crushing and sampling machinery will not exceed \$10,000.00.

Thus it is seen that both in construction and operating expenses, the Catton furnace compares favorably with the Fink furnace.—W. S. Keith, Metallurgist W. Seattle, Wash.

KNAVE OR FOOL.

Weird Example of Reports by Alleged Mining Engineers.

The following letter from a subscriber of the Mining Review will be self-explanatory to readers. It again illustrates the fact that the initials "M. E." may stand for almost anything:

Editor Mining Review:

Sir: It is hardly worth while for the poor mortal to criticise upon (to use an old form) the foibles, follies and errors of one's fellow-travelers, but I cannot resist the pressure to send you the following, which appears in a report on a mine which I have just read and which seems to me to be a gem of its kind:

"The ore is found impregnated in the vein matter of true fissure veins, the walls of which are formed by the volcanic rock which the country is made from."

It is needless to say that "M. E." follows the gentleman's name.

JOHNNIE.

SIERRA MADRE CLUB.

At yesterday's weekly luncheon of the club Mr. George F. Beveridge presided and urged hearty co-operation with the movement. Next week Mr. Thomas E. Gibbon, proprietor of the Los Angeles Herald, will act as chairman and the directors are particularly desirous of a large attendance on that occasion as a mark of appreciation of the consistent aid rendered to the movement through the columns of the Herald.

milling was reduced from \$7.06 to \$6.07. Dividends amounting to \$127,901.16 were paid, cash on hand is placed at \$39,452.97, with total receipts of \$418,978.74 and disbursements of \$379,525.77.

The Round Mountain Hydraulic Mining Company, of which the Round Mountain Mining Company is a one-fifth owner, is now in the hands of a receiver and the financial statement shows that the latter advanced the sum of \$10,000 for the use of the former. The proceedings in bankruptcy were precipitated by the failure of the Round Mountain Banking Corporation, which was forced to foreclose in the interests of depositors. During the operations of the concern, \$4,948.18 was paid in royalties to the Round Mountain Mining Company and it is shown that the total recovery was \$52,988.11 at a cost of \$33,100.77. What proportion of the indebtedness will be recovered for Round Mountain stockholders is problematical, but it is said there is some likelihood of operations being resumed in the near future.

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KEANE WONDER.

sent Litigation. May Eliminate Rickey from Company's Affairs.

At the time the courts of San Francisco granted an injunction against the sale of the Keane Wonder mine last month, it was rumored that such action had been taken in the interests of T. B. Rickey, former president of the defunct State Bank & Trust Company, who is generally charged with juggling the affairs of the two concerns in such a way as to threaten to deprive the mining company's stockholders of their rights. Further light on the tangled situation, however, seems to suggest that, after all, the proceedings have been instituted in the best interests of the stockholders at large and it is now said that a syndicate, backed by ample capital is ready to straighten out the company's affairs in such a way that every dollar invested will be protected. The proceedings at San Francisco were instituted in the name of Earle R. Clemens, publisher of the Rhyolite Herald, a minority stockholder, and the explanation of the circumstances have appeared in the columns

at paper place a different construction upon the entire matter. Mr. Clemens definitely denies the implication that he is in any way identified with Rickey and supports his statement by pointing out that the

latter did everything in his power to head off the intervention of stockholders. The mine is being worked successfully at full capacity, the first clean-up since the new cyanide plant was installed having resulted in a recovery of from \$20,000 to \$25,000. The new shaft is showing up splendidly and will be continued indefinitely after a new hoisting plant has been set up. It is now down 100 feet and shows the best values yet uncovered on the property at a point at least 250 feet below the workings from which ore is now being broken down for the mill.

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BULLION.

Bamberger De Lamar Makes Big Shipment to Salt Lake.

The Bamberger De Lamar Mining Company, operating at De Lamar, Nev., has recently forwarded one of the largest shipments of gold bullion yet received by the Salt Lake government assay office. It consisted of three bars, each weighing 1,400 ounces, or a total of 4,200 ounces, worth \$24,000. The shipment represented the production of the mine for the first half of March. Mr. W. R. Wardner, the former manager of the property, has resigned to accept the general management of the Golden Star Mines Company, operating the North Star mine, at Kofa, Ariz.

GOLDFIELD.

First Quarterly Statement of Consolidated Is Issued.

There is a remarkable discrepancy in the estimates of production for the month of April, the Tribune placing the value at \$2,536,725 and the News admitting that the early estimates were wrong and that the total was no more than \$1,026,000. At the time this article is written no explanation has come to hand, but it would be safe to assume that the high figures are excessive.

Goldfield Consolidated has issued its first quarterly report, covering operations from January 1 to March 31, showing that during that period 45,747 tons were milled and 352 tons shipped with a total value of \$1,905,245, expenses of \$306,480 and net profits of \$1,598,746. After providing for the \$1,080,000 required for dividend number three, the company still retains over \$1,000,000 in its treasury. A remarkable scaling down of expense in production is shown; the rate for January was \$7.316; for February, \$6.315 and for March, \$5.853. It is officially stated that the new bonanza

stope on the Combination has already yielded \$900,000. The estimate for April credits the mine with gross output of \$820,100 and a net profit of \$700,600 from 19,480 tons mined. Mill feed is being held at \$40 a ton and shipments from the Hampton stope have been partially discontinued while thorough prospecting is being done. The company has received settlement for thirty-three tons of ore shipped from the stope some time ago, showing a value of \$48,000, or no less than 72.84 ounces to the ton.

The long-delayed and anxiously awaited annual meeting of the Combination Fraction stockholders took place last week and the result was disappointing. It is claimed that the amount in the treasury on May 1 was approximately \$85,000 in cash and liquid assets and that the month's expense would run to \$15,000, leaving a balance of about \$70,000. From other sources it is learned that the actual cash in hand was at that time about \$30,000. Secretary Douglas denies the report that the company has shipped some sensational high-grade within the past few months and says that present shipments average about 2,550 tons a month of a value in the neighborhood of \$40. Figuring the expense at \$15,000 a month, it is evident that the mine should be making about \$80,000 a month. There is a feeling that the statement is not very clear, but it is also admitted that if it is correct it cannot be long before Fraction enters the dividend list.

Owing to several breakages in machinery and other untoward circumstances the returns for April from the Florence mill will not be as high as estimated. Developments in the mine are, however, said to be very satisfactory.

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TONOPAH.

Sensational Report of Last Week Was A Canard.

The highly-colored report of a strike in the West End, which found place in the Los Angeles Times and other newspapers in the country, has been proved merely a canard and nothing of a very extraordinary nature has been developed in the property. The fact is that a large body of talc was uncovered in the west lateral drift on the 400-foot level, but the high values are in small seams and are negligible in quantity. All the premier mines of the camp are maintaining average production and physical conditions are good.

The output for last week was 5841 tons, of an aggregate value of \$146,

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THE MINING WEST

Sketches, Anecdotes and Reminiscences by the Editor
of the Mining Review.

PEACE TO ITS MEMORY

THE RECENT SLIGHT ADVANCE of quotations upon Greenwater & Death Valley stock on the New York curb suggests that, after all, there may be something in that district of more value than rattlesnakes, lizards and super-heated air. From all I can learn, some encouragement has been found at the 1000-foot level and it is even rumored that ore is being sacked. As the rumor also says that the values run in the neighborhood of five per cent copper, there would appear to be little necessity for sacking unless the product is to be shipped out to the world as ocular proof that ore really exists there. Somehow, I am always from Missouri so far as Greenwater is concerned and I shall be surprised if it ever amounts to very much from a copper-producing standpoint. The observations taken during an eight-months' residence in the district, thirty-five miles from water and in an atmosphere that was far from pleasant, may have turned a natural optimist into a pessimist, but it seems to me that geological conditions are strongly against permanent ore-bodies and, in any event, few companies will be in position to prosecute work to the depth attained by the Schwab company. At the present time it is the only concern operating in the country, the Furnace Creek Copper Company having given up the ghost some months ago. Developments on the Greenwater & Death Valley claims will be awaited before the Patsy Clark company again takes up exploratory work. Talking of Greenwater reminds me that I have recently received a letter from Major J. F. A. Strong, who presided over the destinies of the Greenwater Miner in boom days and who was a familiar figure in those days accompanied by his charming young wife and the old mamalute dog that had shared their fortunes in Dawson and other Alaskan camps. The Major has been in the journalistic line at Katalla, Alaska, since leaving Greenwater but says that developments have not been up to expectations and that it is probable he will once more pull up stakes this summer. In the letter he asks for information regarding the boom camp on the Funeral Mountains and concludes with the benediction "Peace be to its memory." This country is full of surprises in a mining way and something important may yet happen at Greenwater, but, somehow, I cannot believe it and fear that the last chapters are being written away out there on the God-forsaken desert within sight of the low-est spot on earth. I have learned to view life from a different angle since I perspired over those hills and it would take nothing short of the discovery of solid gold in chunks as big as a house to draw me back there.

MR. FRANK ROBBINS

MR. FRANK ROBBINS is another of the widely-known mining engineers, with an experience covering all the principal mining districts of the North American continent, who has been attracted to Los Angeles by its advantageous location as the mining center of the



MR. FRANK ROBBINS

greatest mineral-bearing district in the United States. He obtained the ground work of a technical education with private tutors and at Upper Canada College and went to Nevada in 1877 where he was practically apprenticed to Mr. Max Moeller, a well-known German engineer. After spending some years in that capacity, he was admitted to partnership and practised engineering in all its branches until 1884, when he was appointed manager of the Eureka Consolidated, then the most celebrated lead mine in the country. Later he became manager of the Elkhorn Mining Company, at Leadville, Colo., and, at the inception of the excitement which broke out in the Slocan, Rossland and other districts of British Columbia, he removed to that province. He occupied the position of manager of the Dominion Copper Company, at Phoenix, in the Boundary district, and was also in charge of the North Star mine, in the East Kootenay district, then one of the prospectively great properties of the province. He subsequently brought it to the dividend producing stage and at the same time acted as general consulting engineer for Mackenzie & Mann, the projectors of the Canadian Northern Railroad, who were then heavily interested in the North Star and other mines of the surrounding districts. During his residence in British Columbia, Mr. Robbins was a member of the council of the Canadian Mining Institute and president of the British Columbia Mine Owners' Association. In 1902 he resigned this and many professional engagements to remove to Los Angeles and has since covered the Southwest mining districts in the interests of his clientele. His experience covers Mexico, Alaska, and practically every mining district of

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KEANE WONDER.

EATON GROUP.

Present Litigation May Eliminate
Rickey from Company's Affairs.

Local Company Strikes High-Grade
near Silver Lake.

At the time the courts of San Francisco granted an injunction against the sale of the Keane Wonder mine last month, it was rumored that such action had been taken in the interests of T. B. Rickey, former president of the defunct State Bank & Trust Company, who is generally charged with juggling the affairs of the two concerns in such a way as to threaten to deprive the mining company's stockholders of their rights. Further light on the tangled situation, however, seems to suggest that, after all, the proceedings have been instituted in the best interests of the stockholders at large and it is now said that a syndicate backed by ample capital is ready to straighten out the company's affairs in such a way that every dollar invested will be protected. The proceedings at San Francisco were instituted in the name of Earle R. Clemens, publisher of the Rhyolite Herald, a minority stockholder, and the explanation of the circumstances which have appeared in the columns of that paper place a different construction upon the entire matter. Mr. Clemens definitely denies the implication that he is in any way identified with Rickey and supports his statement by pointing out that the latter did everything in his power to head off the intervention of stockholders. The mine is being worked successfully at full capacity, the first clean-up since the new cyanide plant was installed having resulted in a recovery of from \$20,000 to \$25,000. The new shaft is showing up splendidly and will be continued indefinitely after a new hoisting plant has been set up. It is now down 100 feet and shows the best values yet uncovered on the property at a point at least 250 feet below the workings from which ore is now being broken down for the mill.

The Mining Review is in receipt of a communication from Mr. John L. Witney, manager of the Precious Metals Development Company of this city, in which it is stated that an important strike has been made on the Eaton property, near Silver Lake, San Bernardino county, at a depth of 140 feet, in the new shaft. A ten-inch streak on the hanging wall shows \$715.65 a ton, the balance of the vein, across over three feet, running better than \$50. Samples of the ore are now at the offices of the Precious Metals Development Company in the Security building in this city. The ore shoot is in porphyry, lying on a quartzite foot-wall and is entirely independent of the quartz vein, which is now the hanging wall.

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Report that Rickey Has Been Finally Eliminated.

According to recent reports, the Keane Wonder Mining Company has shaken off the domination of Thos. B. Rickey, former president of the defunct State Bank & Trust Company. By the terms of a contract entered into between Rickey and R. B. Tatem, of Helena, Mont., the latter agrees to pay the amount claimed as due to the former from the company as soon as the courts have decided upon the legitimacy of the claim.

Precious Metals Company Starts Extensive Development.

The Precious Metals Development Company, of Los Angeles, controlled by John L. Witney, Dick Ferris and H. D. Ryus, which recently secured the Eaton group, at Seventeen Mile Point, near Silver Lake, San Bernardino county, Cal., is inaugurating an extensive system of development. Preliminary work has definitely proved the value of the ground and the company is now commencing the driving of an adit which will tap the ore-body at a vertical depth of about 350 feet. It is expected that the tunnel will be nearly 700 feet in length. The management of the property is in the hands of Mr. John L. Witney, formerly manager of the McCracken mine, of Arizona.

CALIFORNIA COAL.

Production, Though Small, Shows Healthy Increase.

The total production of coal in California in 1908 was 18,755 tons, having a spot value of \$54,840.

California is not an important coal-producing State, but it is one of the few in which the output in 1908 showed an increase over that of the preceding year. All of the production was the result of recent developments in new territory. The old mines at Tesla, in Alameda County, and at Black Diamond, in Contra Costa County, were idle throughout the year. The recent developments have been at Lone, in Amador county, and at Stone Canyon, in Monterey county. The production in those two counties in 1908 exceeded that of 1907 by 4,805 tons, and the increase in value amounted to \$16,627.

The coal-mining industry of California has been adversely affected, first, by the importation of foreign and better coals, brought largely as ballast, and, second, by the increased production of petroleum and its use as fuel in manufacturing establishments. As a result of these conditions the production of coal in the State had decreased from over 170,000 tons in 1900 to 77,050 tons in 1905, to 25,290 tons in 1906, and to 13,950 tons in 1907. Up to the close of 1908 all the coal mined in the State had been of the lignite or subbituminous variety. During the last year, however, the development of the mines in Stone Canyon, Monterey county, has placed on the market a bituminous coal of a quality adapted to compete with the foreign coals brought into the San Francisco market, and it is believed that this will result, to some extent, in the rehabilitation of the coal-mining industry of the State. It is understood to be the intention of the promoters of this enterprise to cater to the domestic fuel trade, in which petroleum does not figure as a competitor.

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Ore-Body At The Thousand Not of Commercial Value.

According to reliable reports from New York, the ore-body recently cut at the 1000-foot level of the Greenwater Copper Mines & Smelting Company's property, better known as the Schwab mine, is not of commercial value and it is believed that sinking will be resumed to the 1500 in the hope that values will show improvement at that depth. If this hope proves fruitless it is entirely probable that the work will be abandoned and an effort made to recover a portion of the stockholders' loss by the acquisition of other property in another part of the world. In spite of this condition the stock has been active on the New York curb in the neighborhood of 9 cents, but the demand probably comes from brokers well informed as to the financial condition of the company and has not been caused by results of mining operations. The treasury now contains a little over \$215,000 and the present expenses are at the rate of about \$3,500 a month. It is therefore figured that there will be from six to seven cents per share left in the treasury if the company finally decides to abandon work. At the same time there is always a chance that something of importance may result before development is abandoned.

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VONTRIGGER.

Electrochemical Plant of California Company Nearly Complete.

The electrochemical process being installed on the property of the California Gold & Copper Co. of Vontrigger, Cal., will be completed in a short time. It is expected to work 100 tons a day and will consist of an electric engine, rock crusher, automatic mixers and grinders, and tanks. The process is the invention of A. H. Cram, of Los Angeles, who is the president of the company. The property consists of nine claims all patented, situated one and one-half miles northeast of Vontrigger station on the branch of the Santa Fe running to Searchlight, Nevada. There are three shafts down 150, 100 and 317 feet respectively and all told over 2000 feet of underground work has been done. It is estimated that there are over 30,000 tons of ore on the dump expected to yield an excellent profit under treatment by the new process. The company owns a water system which flows about 17,000 gallons per day and which can be increased by further development. The water is piped about eight miles from the Hackberry mountains.

The camp consists of about twenty buildings, including store, boarding house, rooming house and houses for the miners. The company will conduct an excursion to the property on the 26th of June, the party leaving Los Angeles on the Santa Fe at eight p.m.

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june 19, . . .
'09 p 19 DALE. A

San Bernardino District Has Enjoyed Active Season.

Special Correspondence.—The Eldorado mine, at the west end of the Cottonwood Valley, has closed down for the summer after being under active development during the past year with Mr. Fred Valle, formerly of Silver Lake as superintendent. The

foot level and it is now the intention of the management to put in a pipe line and install a mill as soon as the hot weather is over.

The German-American Company, operating in Pleasant Valley, has just struck the main ledge with 235-foot crosscut tunnel. The vein is six feet wide and is now being thoroughly prospected with a series of drifts and raises.

At the Brooklyn mine three of the six stamps are dropping every day on \$20 ore taken out in development work on the lower levels. The shaft is now down 450 feet and considerable ore has been blocked out. So far, however, no stoping has been done. Sinking will be resumed in the near future. Mr. Wm. Rolph, of San Bernardino, is manager of the property.

The Supply and O. K., the two principal mines of the Dale district, are still tied up in litigation, but it is thought that everything will be adjusted by August 1. The resumption of operations will mean a great deal to this part of the desert.

There is considerable placer activity in both Dale and Desert Queen districts and several transactions of importance have recently been made. One of the most important was the five-year bond and lease on the John McGrath property secured by E. M. Lanfair, of Santa Ana, Charles Campbell, of Los Angeles and Fred Valle of Indio. Good pay ground has been opened up in several places and considerable work will probably be done during the summer.

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SKIDOO MINES.

6-26-09 (19) — A
Operations of Panamint Property
Show Excellent Monthly Profit.

The Skidoo Mines Company, controlled by Mr. Bob Montgomery, of Los Angeles, former owner of the celebrated Montgomery-Shoshone mine, near Rhyolite, Nev., continues to grind out satisfactory profits every month. The company issues regularly monthly reports to stockholders and those of the past three months show profits ranging from \$15,417.46 to \$17,981.57. During March bullion to the total value of \$24,184.01 was produced, with cyanide extraction estimated at \$1,200 and concentrates estimated at \$1,600—a total for the month of \$26,984.01. Development and operation consumed \$9,002.44, leaving a net profit of \$17,981.57 for the month. During April, 916 tons were milled with a total bullion recovery of \$23,471.86; cyanide extraction was estimated at \$2,000 and concentrates at \$400, leaving a net profit, after providing \$10,150.93 for development and operation, of \$15,620.93. During May, 824 tons were treated with a bullion recovery of \$20,472.37; cyanide extraction of \$1,000 and concentrates valued at \$350. Development and operation account reached \$6,404.91, leaving a profit of \$15,417.46. In other words the net profit for the past three months has totaled \$49,019.96, an average of \$16,339.98 a month, or at the rate of \$196,079.84 per annum. Some difficulty has been experienced with the pipe line from Telescope Peak consequent upon contraction and expansion during extreme seasons of the year. Gross extraction is at the rate of \$24,859.41 per month, or \$298,312.92 a year.

KEANE WONDER.

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Death Valley Gold Mine Shows Good
Results for May.

According to the Bullfrog Miner, six bars of bullion were brought in from the Keane Wonder last week, representing a total weight of about 200 pounds, and having a valuation of about \$22,000. For the most part, this is the result of the May run at the company's mill. The cyanide and plates together are returning about \$880 per day.

The mill was operated 25 days during May, the time lost being chargeable to a shortage in the water supply. The mill is making excellent profit and developments of the last two months have failed to demonstrate a weakness either in process or equipment in the plant.

The new shaft started its contribution to the mill last week when the 25-horsepower hoist was put in commission. The shaft is down 140 feet and is all in ore. At the 100-foot level a station has been placed and ore bins installed. Drifts are being run both ways. The immediate object of this work is to get down to the tram level—that is 415 feet—and then run out to the surface. This shaft and the tunnel formed in getting to the tram will be the mainstay for the future Keane Wonder, according to present indications. The mine is opening up more ore with every shift. The grade and character remains uniform.

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SILVER LAKE.

San Bernardino Camp Sends Forward
Some Excellent Shipments.

Mr. Hugh Craney, attorney and justice of the peace at Silver Lake, San Bernardino county, has been in the city during the week and reports conditions as excellent in the vicinity of his home. James S. Hyten has recently shipped twenty-five tons of ore to the Selby smelter from the Jumbo group, ten miles east of Silver Lake and has received settlement at the rate of \$29.70 per ton gold. Frank Riggs shipped 800 pounds from the Alta to Selby by express and realized \$1.40 a pound. He is now preparing another similar shipment. The Stillwell brothers have sent forward a carload of twenty-four tons from Seventeen-Mile Point of an estimated value of 60 per cent. lead and about half an ounce of silver to each unit of lead. Mr. John L. Witney, manager of the Precious Metals Development Company, operating the Eaton Group at Seventeen Mile Point, is doing excellent work and is pushing the main shaft down another 100 feet from the present 200-foot mark. The property is developing beyond the most sanguine expectations.

6-26-09 SEARCHLIGHT.
p 19

Pompeii Mine Scene of Activity and
Extensive Operations.

Mr. Matt C. Hoveck, formerly manager of the Montgomery-Shoshone and Skidoo Mines, who is now in charge of the Pompeii mine, at Searchlight, Nev., is making excellent progress with the work in hand and has already reached the 315-foot level in the unwatering operations which he undertook some months ago. The property was at that time taken over by Mr. W. B. Rulon and associates, of Philadelphia, Penn., and placed in charge of Mr. Hoveck, who is also heavily interested in the company. In earlier operations a remarkable flow of water was encountered and the property was subsequently flooded owing to the inadequate capacity of the large pumps installed. The mill is being steadily operated upon ore which is said to average \$18 a ton and it is also reported that a total saving of 95 per cent. is effected. It now looks as if the Pompeii would develop into one of the most important producers in the Searchlight district.

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SKIDOO MINES.

First Regular Quarterly Dividend Paid Out Last Week.

The Skidoo Mines, situated in the Panamints, west of Death Valley, and controlled by Mr. Bob Montgomery, of Los Angeles, entered the dividend column last week by the distribution of \$50,000, or 5 cents a share on the capitalization, which is \$5,000,000 in \$5 shares. The management expects that this will be the forerunner of equal or greater dividends every quarter.

The successful exploitation of this project, one beset with more than ordinary difficulties, even in desert districts, reflects great credit upon Mr. Montgomery and those who have been associated with him in the enterprise. The property was taken over in 1906 and after developing it to the productive stage, the management put in a twenty-three mile pipe line from Telescope Peak, the highest point of the Panamints, at a cost of approximately \$225,000. The magnitude of this task can be gathered from the fact that all pipe and material was hauled 100 miles over the desert from Johannesburg at a price in the neighborhood of 3 cents a pound. A ten-stamp mill, since increased to fifteen stamps, was built and commenced dropping stamps on June 1, 1908. Since then it has been regularly at work upon the company's or leasers' ore and is now producing about \$30,000 a month gross. It is equipped with cyanide annex and concentrators and cost in the neighborhood of \$60,000. The property is 110 miles from Johannesburg and 55 miles from Rhyolite, but it is necessary to make the longer approach owing to the fact that the road from Rhyolite leads over Death Valley. Recent reports contain the intelligence that what is known as No. 2 vein is developing beyond expectations and that a large additional tonnage of good ore has been made available in that direction.

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July 10, '09 AURORA. p 19

New Power Company Will Resurrect Old Nevada Producer.

If present plans are carried through, and there is every indication that they will be, the old camp of Aurora, in Esmeralda county, Nevada, will soon be in the active column once more. Present day development has been held back by lack of cheap power, but that deficiency is to be supplied by a new company formed a few days ago to bring power from

The capital has been pledged by Jim Cain, president of the Cain Consolidated, Bodie; Miller & Adams, of Lucky Boy mine, Hawthorne; Collins, of St. Louis and Mitchell and Fairfield of Goldfield. The distance from the projected plant to Aurora is twenty-one miles. In the early days Aurora produced about \$30,000,000, with no workings below the 450-foot level, but subsequently became neglected and was practically closed down early in the eighties. Within the past few years three concerns have been gradually securing the entire camp and everything of value is now vested in either the Cain Consolidated, in which Ex-Senator J. P. Jones, of Santa Monica and his son-in-law, Mr. Gorham, of Los Angeles, were interested, but who have just disposed of their interests to Miller & Adams, of Hawthorne; the Aurora-Esmeralda Company, controlled by Los Angeles stockholders, and the Silver Lining Mining Company, owned by F. M. "Borax" Smith, president of the Tonopah & Tidewater Railroad. Some activity is already apparent in the old camp and the Cain Consolidated has seven sets of leasers at work. A lease has just been granted on the Wide West claim of that company to Geo. Denham, for fourteen years manager of the Inca gold mines, Peru, South America, and Fred Wagner, of Los Angeles. They are said to have four feet of ore that will mill \$65 in gold and are now operating the twenty-stamp mill of the Cain Consolidated. The Aurora camp is now approached from Thorne, on the Southern Pacific, but in the early days of its history it was necessary to transport all machinery and supplies from Stockton, Cal. Later, supplies were brought in from Reno, on the Central Pacific, but the district has always been greatly handicapped by lack of cheap transportation and power.

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CRACKERJACK

Bonanza Company Considering Erection of Reduction Plant

The Crackerjack Bonanza Gold Mining Company, in the Crackerjack Mining District, near Silver Lake, in San Bernardino county, is making good headway in a crosscut being run from the 200-foot level of its incline shaft. The crosscut is in nearly 100 feet in talc formation, and the management is very confident that within the next thirty or forty days the continuation of the rich ore bodies encountered in upper workings will be struck. The work is being done under the supervision of L. F. Florman. The free milling zone of the property has been practically proven by work done on its upper levels; this work includes the main double-compartment timbered shaft, sunk 150 feet, and a tunnel running in 400 feet from the mountain side, intersecting the shaft at the 300-foot point. Quite a number of drifts and crosscuts have been run from the shaft and tunnel, all in good ore. The property consists of six claims located in a body on Bonanza Mountain, and another claim about a mile distant on which a very fine well has been developed, assuring the company an ample supply of water for all purposes. The company has worked very steadily and quietly on its property for the past two years, with a view to systematically opening it up and learning its possibilities before putting in a reduction plant.

JUL 24

JUL 2

OWENS RIVER MINES

Great Mineral Resources of Country Soon to Come Within Sphere of Influence of Los Angeles. The Famous Cerro Gordo Mine, Where the First Water-Jacket Furnace Was Used.

[BY DREW HAVEN DUNN, LOS ANGELES, CAL.]

THE NEXT twelve months will witness the results of the wonderful changes that are now taking place in the Valley of the Owens river. The hydrographic engineers, under commission from the City of Los Angeles, have shown sufficient good judgment, born of experience, to utilize a small part of the vast water resources of this valley and its Sierra Nevada watershed; the land seekers by the hundreds, as individuals and in colonies, have followed and filed upon tens of thousands of acres of fertile government lands. However, it was during the years that the agricultural, water and water-power resources of this region were lying dormant, that the persistent prospector and miner brought into being those great producers of millions of mineral wealth in the Cerro Gordo and Darwin camps. In the early '70's these camps were, to lead mining, Butte and Bisbee of today are copper.

Smaller camps of a thousand or so inhabitants flourished throughout this country. A few years ago, there was nothing left but the ruins. The wastes of prosperity and its incident systems of ore recovery, the crude and primitive smelting methods, together with a dearth of what is now, to us, a high grade ore, were the causes. Today, this country is undergoing a change, and through the assistance of Eastern capital, coupled with up-to-date methods, several of these old properties are being opened up with a view to recovering the large deposits of ore, which time and improved methods have rendered profitable.

Keeler, the hub of this mineralized country, is at the southern terminus of the California and Nevada R. R., the narrow-gauge branch of the Southern Pacific from Reno, Nevada. Darwin, the good old lead-silver camp of former days, lies in the hills some twenty odd miles southeast. Eastern capitalists are now re-opening the Luck Jim mine, an old producer.

Miles east of Keeler, and nearly one mile higher, is the famous old Cerro Gordo camp. Here it was that the first water jacket was devised in 1873 by a man named Thomas. The

accompanying cut shows one of the originals, long since discarded. Several of these water-jackets, lying near the ruins of the old adobe smelter, have the crude earmarks of a home-made article. To date Salt Lake has robbed Cerro Gordo of the distinction, claiming that the first water-jacketed furnace was made here in 1876.

Late in 1907, the Four Metals Smelt-



OLD CERRO GORDO MINES, INYO COUNTY, CAL.

ing & Mining Co. secured possession and control of the old Cerro Gordo properties, formerly owned by the Great Western Ore Purchasing and Reduction Company. Since that time, this company has installed a tramway from mine to smelter of a capacity of 125 tons per ten-hour day; refitted the smelter at Keeler; re-built the steam and hoisting plant; put in an air compressor and power drill equipment, and has also installed a complete telephone system.

The smelter has an actual capacity of 100 tons per day and an additional stack is contemplated, as consignments of high grade ore from the outlying camps have started to come in. Mr. George G. Griswold, the well known smelting man, formerly of Globe, Arizona, has charge of the smelter.

At Cerro Gordo, wood, packed several miles, constitutes the fuel. A noticeable absence of timber for miles around Cerro Gordo tells the tale of past activity. Water is piped

from Mexican Springs, on the back bone of the Inyo Range, five miles north. The mines of the Four Metals Smelting and Mining Company are under the able superintendence of Mr. Lloyd D. Skinner, a young mining engineer from the Nevada School of Mines, who is well fitted for his work, having been born in Darwin and having lived and worked all his life in the lead camps of the West. The systematic and careful manner in which the old Cerro Gordo properties, as well as the recent new rich discoveries, have been re-opened or developed, reflects great credit upon the present day management. The lowest depth yet reached is 900 feet; there are over twenty-five miles of underground workings and the ore

zones have been prospected irregularly from 600 feet south to 1500 feet north of the main shaft. The workings are exceedingly dry and the ore, a simple replacement in both belts of lime-stone, occurs in zones in the lime, varying from the perpendicular to a 45-degree dip.

An immense glory hole, a few hundred feet southwest of the Cerro Gordo shaft, marks the original discovery in the camp and also, it is said, marks what is locally called the "contract" between the light and the dark lime. Frequently, underground, this zone is announced by the presence of a considerable width of a dark, to almost black, gouge-like calcareous muddy matter—presumably a rotten shale—and a close associate of the ore lenses. Indirectly associated with these large galenite deposits, occur extensive bodies of the oxidized group of zinc ores containing many rare and complex zinc minerals peculiar to this district only. In time it is believed these

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mines will be zinc producers of considerable consequence.

In passing through the winding mazes of workings, one is impressed with the size of the open and abandoned stopes, chief of which is the "China" stope, 8 to 20 feet in width, and, as yet of unknown height, the surveys not having been completed to date. Here may be seen the remnants of the crude jigs used by the scores of Chinamen who were permitted, during the years of cheap lead and silver, to work over the old waste rock and such ore as they could readily find.

Some years ago the fall of part of the roof killed three Chinamen and, while former owners insisted that all

throughout the camp and the light of future developments will show, as has been the case in many other mining camps, that the productive area is considerably larger than the old timers had believed possible. This camp affords exceptional opportunities for capital.

The backbone of the Inyo range, going north, shows a heavy mineralization, and considerable prospecting is going on throughout this territory, which to the eye looks very promising. One of the striking features of the Inyo range in this vicinity is the abruptness of the topography on the east shoulder, as compared to that on the west. Cerro Gordo Peak is said to have the narrowest base as com-

considerable work of a prospecting nature has been done. The most important camp in this vicinity is Wells camp, where A. W. Wells and associates have been conscientiously at work, even through the heavy winter snows, for several years. Proper development will open up several producing properties in this section. Even during the last year, H. R. Robinson, of Los Angeles, has been shipping from his properties considerable high grade ore; H. C. Parrett, of Los Angeles, has been sacking ore ready for shipment, the results of a strike occurring in an andesite contact with lime, on property he has under lease. J. R. Angelovich and others are also developing good properties in the vicinity of Wells camp.

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ONE OF THE OLD WATER-JACKET FURNACES BUILT IN 1873. LLOYD SKINNER, SUPERINTENDENT

three bodies were recovered, Chinese at work in the camp disappeared like a canteen of water in Death Valley, claiming that the restless spirits of departed comrades broke in on nights upon their rest. The last Chinese cook decamped after, as he avers, watching a troubled Chinese spirit arise from the collar of the Cerro Gordo shaft and moan beside his cot. It is quite possible that Cerro Gordo may have thus suggested the solution of the so-called "Yellow Peril" problem.

Four miles southeast and over half a mile below Cerro Gordo, the "Newshor" group is being extensively developed by the same company. Large bodies of very rich ore are being opened up here, ores of argentiferous galena and black metal predominating. The name, "black metal", for the complex sulphide containing copper, silver and lead, had its origin in this district. Many other activities are to be seen

pared to its height—some 9,000 feet—of any mountain in the Americas, if not in the world. The dark and the light lime belts of which Cerro Gordo Peak is a part are overlain by their customary shales and sandstones, the original nature of which is only determinable under the microscope, they having been folded and metamorphosed into schists, slates and their intermediates. The creation of this range and the several gigantic step faults causing an abrupt east shoulder with a gentler, sloping, but many-folded, western shoulder. This is evident, not only on the Inyo Range, but on the Panamint and Funeral ranges as well, enclosing as they do Saline and Death Valley.

Along the Inyo range, therefore, this backbone of lime stands forth and continues uninterrupted for some eleven or twelve miles, at which point granite intrusions appear. Here are situated several small camps and

SIERRA MADRE CLUB.

Invitation Extended to Members of Hassayampa Club.

The directors of the Sierra Madre Club have extended a hearty general invitation to resident and visiting members of the Hassayampa Club, of Arizona, during the latter's annual meeting in this city, through the president, Mr. John S. Mitchell, of the Hollenbeck Hotel.

The architects of the club are still at work upon the specifications for the extensive alterations to be undertaken upon the upper floors of the Columbia Trust Building, but it is expected that all preliminary arrangements will be made within a few days and the contract let.

During the week applications for membership have been received from Mr. T. M. Drennan, Parker, Ariz., and Mr. C. W. Wardwell, Altadena, Cal. Visitors registered during the week included: T. M. Drennan, Parker, Ariz.; T. J. Hardwick, Parker, Ariz.; Chas. F. Spilman, Goldfield, Nev.; G. I. Hayes, Whittier, Cal.; Chas. S. Early, Parker, Ariz.; G. O. Marsh, Parker, Ariz.; J. D. Leedy, Parker, Ariz.; Frank Murphy, Parker, Ariz.; R. G. Dunlap, Tonopah, Nev.; Ed. Muncey, Furnace Creek Ranch.; F. W. McKinney, Swansea, Ariz.; R. E. Moore, Morenci, Ariz.; A. S. Valdespina, Torreon, Mex.; W. E. Deffy, Phoenix, Ariz.; C. W. Wardwell, Altadena, Cal.; Hugh Hyndman, Pittsburgh, Pa.; Harry and Roy Mathewson, Santa Eulalia, Chihuahua, Mex.; A. B. Hall, Hiko, Nev.; M. E. Paddock, Parker, Ariz.; Jos. Pugh, Long Beach, Cal.; J. B. Proctor, Santa Monica; S. P. Mount, Cleveland, O.; Chas. W. Mills, Parker, Ariz.; N. W. Stanfield, Clearwater, Cal.

INYO MARBLE

Vast Deposits of Beautiful Marble Being Developed By Inyo Consolidated Marble Company, a Los Angeles Concern. Capable of Meeting the Demands of the West.

(BY DREW HAVEN DUNN, LOS ANGELES, CAL.)

OF AN importance at present difficult to estimate are well known marble deposits at Inyo and Swansea on the California and Nevada Railroad, three to four and one-half miles north of Keeler, Cal. These deposits are of pure dolomite, uplifted nearly perpendicular, lying on the schists and slates which erosion has sculptured into peaks of medium height along the range. In several isolated localities an overlapping quartzite, lying upon the marble formations, juts above the valley detritus. This is especially evident near Swansea, two and one-half miles north of Keeler.

Practically all of the workable or commercially valuable deposits along this marble belt have been acquired and are now owned by the Inyo Consolidated Marble Company, a close corporation, composed of Los Angeles and Eastern people, who contemplate putting in extensive improvements, including a large finishing plant in order to take care of the trade west of Denver.

The Inyo quarries have been worked intermittently in a crude way for the last twenty-five years; in many buildings in San Francisco and other coast cities has Inyo marble been utilized, among them the Mills Building, San Francisco, the Stockton Public Library and the Homer Laughlin Building in Los Angeles. The marble has distinctive qualities possessed by no others; its crystallization is fine, clear and perfect. Nothing can compare with it in this respect except the pure Parian marble, and the quantity is unlimited.

Within a space of two miles, the Inyo quarries contain more different shades of marble than the same amount of ground in any other part of the known world, among them being the pure white, cream, black, blue, and yellow in solid colors; blue and black, white and blue, light and dark agate, and black and gold, purple-veined and nearly all the shades of these combined in the mottled shades. This gives a beautiful variety of marble for decorations of all descriptions, such as wainscoting, panels, slabs, soda-fountains, man-

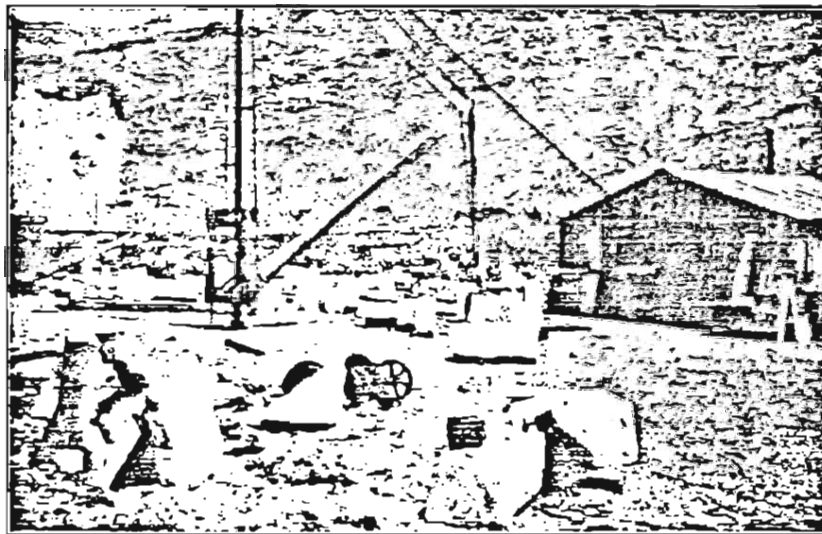
corridors, tilings, tablets, monuments, etc.

Inyo white marble is clear and translucent, having the appearance of granulated sugar loaf. Italian alone will compare with it in its fine crystallization. The black copes as easily and as well as any white, and is exactly the same color and formation as the Belgium black, it being impossible for an expert to tell the

cent loss as compared with Vermont, Tennessee and Italian marbles at 58 per cent, 40 per cent, and 38 per cent respectively. Further, the resistance of this marble to crushing is 32,000 lbs. per square inch as compared with Vermont and Italian at 6000 pounds and 10,000 pounds respectively.

The following notations are taken from "Stones for Building Decorations," by George P. Merrill, Curator of Geology in the United States National Museum and Professor of Geology in Columbian University:

"At the foot of the Inyo Mountains in Inyo County, California, about five miles north of the town of Keeler, there occurs an extensive bed of



INYO CONSOLIDATED MARBLE CO.'S QUARRIES.

difference between them when placed side by side.

The yellow marble varies in shade from a deep orange or golden to a delicate cream, and its crystallization is the same as the white, with an occasional vein of chalcedony of deeper yellow, also, at times, fern-like markings similar to the moss-agate. This is especially adapted for wainscoting and other interior decorations. The moss-agate is of light and dark brown shadings, with fern-like markings, and is the only marble of this description known. Any of these colors can be quarried in unlimited quantities and in any size blocks desired.

The durability of this stone is greater than any other marble now on the market, due no doubt to its being a dolomite, with absorption but .023 per cent. This also accounts for its characteristic resistance to loss of polish. Another solid

dolomite. In which, within a few years, marble quarries have been opened. The strata here are upturned at an angle of 75 to 80 degrees and the beds superficially seamed and cracked to such an extent that large blocks on the immediate surface are unobtainable. Although the quarry openings are as yet shallow, the indications are, however, that these defects soon disappear, and at no great depths, sound blocks of any size that can be handled may be obtained.

"The stone at the various outcrops now exposed is quite variable. At one of the openings it is pure snow white, fine-grained and equal in texture to Italian marble, but much harder, firmer and more compact. But a few hundred yards from this, an opening which seems destined to furnish some of the most unique, if not most beautiful, stone thus far produced in America. In texture, this is

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in every direction with blotches, streaks and finely-divided, branching, feathery, dark brown, nearly black dendritic, or fern-like, markings.—

—sumably caused by oxide of manganese—and which, added to occasional blotches of Sienna-yellow, produce an effect that must be seen to be appreciated. Still a third variety is Sienna-yellow of varying shades. This last, while nearer the true Italian Sienna than any now produced, differs in being distinctly granular in texture, and can perhaps be more correctly compared with the well-known Estremoz, or so-called Lisbon yellow from Alemtojo Province, Portugal. "A fine grained black marble is also found in the near vicinity, which, while it does not polish well, may answer for floor tiling.

"The Inyo marbles are perhaps among the most pure dolomite, close-grained and compact, and equally well adapted for exterior and interior work. Their superior hardness will cause a greater expense in working, than in the Eastern or Italian marbles, but whether these items will not be more than counterbalanced by cost of transportation the future only can decide. The quarries are on steep hillsides quite devoid of timber or soil.

Chemical analysis made at the laboratories of the State Mining Bureau, yielded 54.25 per cent. carbonate of lime, 44.45 per cent carbonate of magnesia, and but 0.60 per cent. of iron and silica. Specific gravity 2.80, which is equal to a weight of 179.5 pounds per cubic foot."

Professor George P. Merrill is recognized as one of the world's authorities on building stones. Later developments have shown that a great portion of the seams and cracks, which are so plentiful and conspicuous on the surface, as to produce the inevitable first impression of the rock being somewhat seamed, are, in reality, only superficial in their character; that is to say, they extend but a small depth into the rock, and then run out entirely, leaving the marble beneath them perfectly clean and sound. Some of them run only two or three feet deep, or less; others extend to a depth of five or ten feet, or more, but the number of them which run out and disappear entirely within a depth of twenty or twenty-five feet is so great that by the point there is no difficulty in getting sound blocks of any dimensions that are required, and that can be handled. It would seem therefore that the Inyo quarries are destined to become an important factor

in the commercial world upon the coast.

In outlining a few general facts concerning the mineral resources in the immediate vicinity of Owens Lake, the Mining Review has dealt with but one small part of the vast territory that will be tributary to Los Angeles when, in the next few months, the Southern Pacific Railroad between Mojave and the California and Nevada Railroad has been completed.

KEANE WONDER.

Troubles History of Mine on Death Valley's Rim.

The report of the discovery of a body of copper sulphide ore at the Keane Wonder, calls attention to a mine of the grim Death Valley section which has had a most interesting and stormy history. Originally located by a desert desperado who, because of his quickness on the trigger, was taking a vacation far from the haunts of sheriffs and their ilk, the mine was subjected to many tribulations ere it emerged a producer of yellow bullion in bricks. Lying on the brink of the Valley of Death, far from a railroad and scorched with an all-but-unbearable heat, the property finally became the asset of a corporation organized by Homer Wilson. Becoming convinced, early in the history of its development, that the Keane Wonder could never prosper without a mill, and realizing the difficulties which beset him, Wilson started to build the mill. It was no more than finished than the bulk of the stock became involved in the failure of the State Bank of Nevada, where it had been deposited as collateral for the money furnished by the bank for the development of the property and the installation of reduction works.

Although his personal holdings were at stake, Wilson faltered not, but, taking up his abode in the inferno in which his bonanza was located, gave his entire time and attention, during the fierce summer months, to the perfection of his plans. All sorts of troubles fell to his lot, and even after the heavy machinery was freighted across the hot sands of the Amargosa and set in place, it was found that the water, in passing through the pipes, became at times so hot as to affect the amalgam and interfere with operations.

During these weary struggles, and through the long, hot months of a torrid summer, Mrs. Wilson, plucky

woman, was the companion of her husband, giving him the encouragement of her presence.

The legal affairs of the Keane Wonder have been straightened out and the mill is grinding out gold at the rate of \$20,000 a month. The deposit of ore for which the mill was built is a blanket formation and the ore was extracted through tunnels. Some months ago Wilson discovered a well defined ledge on one of the claims and recently started a shaft to develop it. It is this shaft which at a depth of 170 feet encountered the copper sulphides and the report has it that the assays show the presence of 22 per cent. in the red metal, besides values in both gold and silver. At a depth of 100 feet, in a drift, eighty feet distant from the shaft, the same ore shoot has been found, indicating that a considerable body of ore exists. It is a peculiar feature of the strike that the Keane Wonder, originally a gold mine, has the very kind and character of copper which was depended upon to make of Greenwater the great copper camp of the Southwest. The two districts are but a short distance apart, as distance is measured on the desert. The Keane Wonder has found by chance what hundreds of thousands of dollars, judiciously expended, failed to disclose in Greenwater. Both districts are situated in Inyo county, California.

SNOWSTORM COPPER.

Leo Greenough, superintendent of the Snowstorm Mining company, says in his annual report for the fiscal year ended July 31, that 9,338,310 pounds of copper was produced, together with 661,471 ounces of silver, of a net value of \$536,539. The net profit on each pound of copper was approximately three cents. The average assays showed 6.39 ounces of silver and 4.5 per cent. copper. The sum of \$328,890 was paid in dividends. The surplus was, cash in bank, \$20,980; ore in transit \$25,422.

The General Electric Company is now operating at about 80 per cent. of capacity as against 40 per cent. during the depression. The Westinghouse Electric Company is operating at about 70 per cent., as compared with 38 per cent.; Western Electric and Allis-Chalmers are each operating at 75 per cent., as compared with 40 and 50 per cent. respectively. These are excellent signs of the times.

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TUNGSTEN TARIFF.

Ten Per Cent. Duty May Presage Formation of Trust.

Atolla, Cal., Aug. 14, 1909.

Editor Mining Review.

Sir: Why did they put that duty on tungsten ore? Ten per cent. was not much, but where was the need of making tungsten mining one of the protected industries? All of the output of this camp goes to Europe. Does that look as if the tungsten miner, either here or in Boulder county, Colorado, had anything to fear from the foreign producer of this rare mineral? The American manufacturer of tungsten alloys has foreign competition ahead of him, and plenty of it, but not the miner who is producing the ores carrying this metal.

It is going on five years ago now since a prospector's location notice was posted on what was then, and still continues to be, the greatest tungsten discovery that was ever made. And, from that day to this, there has not been a time when the foreign consumer, German, English or French, has not been paying the better price and therefore getting all of the very large output of this whole district. This has been the market condition here from the first; why then this tariff, when those whom it is aimed at have not enough of this product to supply the demands of their own manufacturers? It may be the first move toward the formation of a trust, a not altogether improbable guess when it is known that it was Senator Simon Guggenheim who fathered the bill.

What present profits are, matters little to those who are mining for tungsten; if by combining they can get more, they can be relied upon to do so, but when I saw one 30-ton carload of this mineral shipped from here Wednesday and another 30-ton car today, both for Europe, I thought the \$30,000 they are to bring a mighty big thing for what it cost to get them, and that we ought to know, some time or other, when enough is enough. What other product of our mines has increased seventy per cent in value since November 1907? Not silver, copper, lead or zinc. And the many new uses to which it is being put assures it a future the level of which no man can predict, and only those poorly informed could have believed it to be in need of a ten or any other per cent of protection.

Yours truly,

SCHEELITE.

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SKIDOO MINES.

Advices received by the local office from the Skidoo Mines, Panamint Range, Inyo county, Cal., are to the effect that the mill is running smoothly, although there has been more or less pipe-line trouble during the month owing to shrinking from excessive heat. The mill is now running on a lower-grade ore than usual and it is therefore expected that the August returns will be somewhat smaller than the average.

CALZONA.

New Townsite Being Platted Near Colorado River.

Los Angeles men, including Mr. Carl F. Schader, are interested in the new townsite of Calzona, now being platted on the Santa Fe cut-off from Parker to Bengal and about one and a half miles from the Colorado River. The town will be the first in California after crossing the river and is at the converging point of wagon roads from the mines of Riverside mountains, Whipple Mountains, the D. & W., American Eagle, Dunkirk and Copper Basin, and from Needles and the great Blythe ranch. It is in the center of the great agricultural area in Riverside Valley and a part of the 280,000-acre Parker Indian reservation which will be shortly thrown open to entry. It is said that a line of steamers will be placed upon the river to ply between Calzona, Laguna Dam and the Blythe ranch. Mr. Herbert G. Schader, the well known mining engineer and surveyor, of Oatman, Ariz., is now laying out the site and all business details have been assumed by Mr. B. L. Vaughn, the real estate man of Needles.

AUG 21

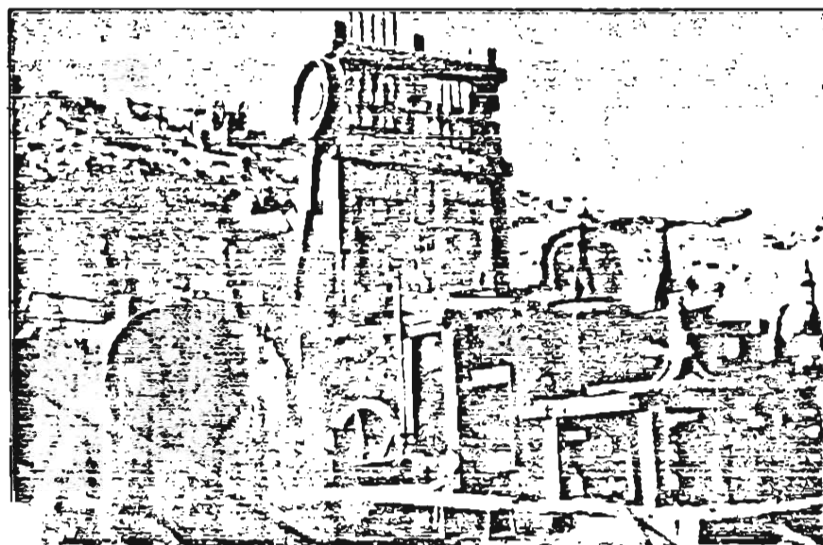
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CIMA DISTRICT 1909

San Bernardino Producer Again Coming to the Front. Scheelite, Wolframite, Gold and Silver Found in Paying Quantities. Country Tributary to Los Angeles

[SPECIAL CORRESPONDENCE OF THE MINING REVIEW]

THE CIMA DISTRICT covers part of the great limestone-granite contact extending through the north-east part of San Bernardino county. the scheelite and wolframite occur in paying quantities and in some places extend to depth. There are also important deposits of zinc in the lime-



OLD MESCAL MILL, NOW BEING OVERHAULED.

This section of the country came first into prominence about thirty years ago, when silver and copper were discovered in the Clark mountains. From these mines more than \$5,000,000 was recovered. The district for a distance of about twenty-five miles north and westerly of Cima is of limestone and granite formation tilted by intrusive dikes of andesite, diorite and altered schist. The limestone-granite contact shows veins and lenticular masses of iron and copper ores. The copper, and also most of the silver ores, are generally deposited in the lime near the contact. The gold ores occur in the granite, mostly near the diorite or schist intrusions. The mineralization has in many cases extended into the schist, where it is seen in fractures filled with hematite carrying free gold.

The tungsten fields are in the granite from one to two and a half miles from the contact. The ores occur as high-grade lenses between different granites, or as fissure veins from three to twenty feet wide. These fissure veins cut the granite and run easterly and westerly, while the high-grade lenses are in granite, running northerly and southerly. Both

stone. Antimony has been shipped by the carload. Bismuth has been lately discovered about four miles north of the tungsten fields.

Following up these discoveries, there was a immense influx of prospectors. A vigorous prospecting campaign is now being carried on. Gal-

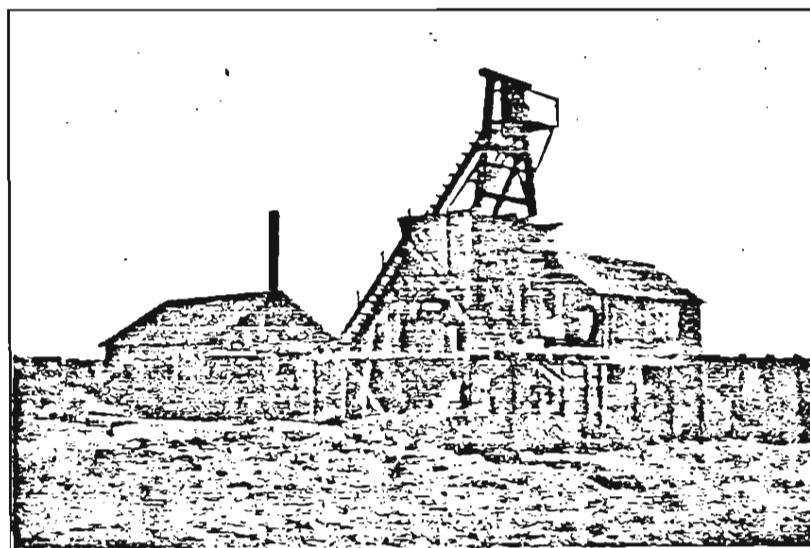
lows frames are going up everywhere and hoists are being installed. Several very promising and payable ore bodies have been discovered and there is every indication that the district will prove to be an important producer.

At the Tungsten, a Fairbanks-Morse hoist is in course of erection, and another one has been operating near Kessler Springs. A mill has been erected at the Casa Grande mines. At the silver mines the old mills are being overhauled and will shortly be in operation.

Consequently, by the influx of a large number of people, the town of Cima has grown from a single station house to a lively mining camp, enjoying plenty of water and good accommodations. Excellent teaming service can also be secured at very reasonable rates.

The entire district is well mineralized and plenty of capital is available. This fall and winter will bring one of the most substantial eras of development yet witnessed in San Bernardino county. Most of the capital now employed comes from Salt Lake and the East.

The development of this new field is of great importance to Los Angeles. It means a big demand for supplies and machinery and the trade should gravitate that way, as the dis-



STEAM HOIST AND ENGINE HOUSE, DEATH VALLEY MINE, THREE MILES WEST OF CIMA

trict is only 250 miles to the north.

A New York report states that the British Columbia Copper Company which closed down last May because of labor troubles, will resume operations. Another report states that steps are being taken to consolidate the New Dominion Copper Company with the British Columbia Company.

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Masonic Consolidation.

The consolidation of the Golden Cycle and Boston Masonic mines forms the most important deal of several months in the Masonic district. The merger is known as the Monilda Mining Co. and was incorporated under the laws of Arizona. Work has commenced on the Golden Cycle, where, at a depth of 87 feet, a strong body of ore, running \$200 per ton, is said to be in sight. Within a few weeks operations will be resumed on the Boston Masonic, where an adit has disclosed a strong body of ore running from \$50 to \$200. Developments are expected to result in the making of valuable properties. The Pittsburg-Liberty is producing steadily and the mill is busily engaged. Enormous reserves of low-grade ore have been opened but will not be mined until the new railroad has been completed. It is understood that the difficulties between the Jump-up-Joe and True Friend companies have been adjusted and that work of an extensive nature has commenced at both mines. The Sereta, lying near the Pittsburg-Liberty, reports the opening of a promising vein of high-grade ore. The Masonic district is more animated at the present time than at any period in its history. This is largely due to the efforts of the United States Gold Corporation, which is actively operating the Sunny Jim and other properties with satisfactory results. 10-16-09

Greenwater Dies.

According to reliable reports from New York, the home of the Greenwater & Death Valley Copper Co., that concern has finally abandoned its efforts to develop a mine on the edge of Death Valley and will permanently retire from the field. The treasury of the company still contains about \$150,000 in cash and it is the intention of the management to look for another property in some other location in the hope of recovering some of the money which stockholders have lost. So far as known here, no plans have been formulated, but the machinery has been removed from the Greenwater workings and the final chapter has probably been written in Greenwater's brief history as an embryonic copper mining center. It will be remembered that the property owned by the Greenwater & Death Valley Copper Co., was acquired by Charles M. Schwab and associates over three years ago and a spectacular flotation effected upon the New York market. The quotations ran up to over \$2, upon a capitalization of \$3,000,000 and a large fund was accumulated for the development of the ground. For the past two years the price has been steadily sagging upon poor reports from the mine and is now in the vicinity of five cents a share—an amount which just about covers the amount of cash on hand. The Junction shaft of the company was pushed to a depth of 1430 feet before work was finally abandoned.

PARKER DISTRICT. (20)

Local Operator Reports Excellent Conditions Prevailing.

Mr. Carroll J. Daly and Mr. Joseph A. McBride, president and secretary respectively of the Daly Mines Co., operating eight miles south of Bouse, Ariz., have just returned to Los Angeles from a two weeks trip to their property and to other points of interest in the locality. Mr. Daly reports great activity in every direction and says that there has been a noticeable increase in optimistic feeling since his last visit. The Daly Mines Co. is now sinking the Vulcan No. 2 shaft on the south end of the property and has reached a depth of forty feet. Some good ore has been encountered, showing values of ten per cent. copper. At the Clara Consolidated a force of nearly 100 is busily engaged at the mines and smelting works, while another large force is at work on the grade of the new railroad. So far about fifteen miles have been placed ready for the steel, which has been ordered in San Francisco from the Southern Pacific Railroad and which is expected any day on the ground. The construction gang on the cut-off of the Arizona & California railroad numbers about 1000 and is now working west of Parker towards Bengal. The completion of this branch line and the operation of the Clara spur, combined with the early blowing-in of the Clara smelter will undoubtedly have a further stimulating effect upon the district and a very active winter is confidently looked forward to.

10-16-09 (20)
Mr. H. E. Woods, president of the California Hills Mining Co. and heavily interested in the Tom Reed Extension, has gone to the property of the former company to inspect developments. He has been confined to his summer residence at Laguna Beach for some weeks.

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VONTRIGGER.

New Leaching Plant Will Probably Start in Sixty Days.

The new leaching plant of the California Gold & Copper Co., of Los Angeles, is being rapidly constructed and it is expected that it will be turning out copper within sixty days. The building is ninety-six feet wide by 100 feet long and is of substantial character. The mixers, settling tanks and precipitation tanks are all in place, while the crushers, rolls and Fairbank-Morse engine, of powerful capacity, have all been contracted for and will soon be delivered. It is estimated that there are several hundred thousand tons of oxide and carbonate ore ready for treatment, in addition to the sulphide bodies at lower depth which the plant is also designed to treat. The process is the invention of Mr. A. H. Cram, president of the company and the largest owner.

Mr. A. K. Wright, of Eldorado Canyon, and his associates, have completed assessment work upon the X-Ray group of three claims in the vicinity and have developed an excellent showing.

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CALZONA. //

Several Important Strikes Reported in Riverside District.

There have been some very rich strikes made recently in the Riverside Mountain Mining district west of Calzona, San Bernardino county, California. The Steece Copper Co., a close corporation, with properties in the Riverside Mountains eight miles southwest of Calzona, tunneling for the past two weeks, has been in ore running \$5,000.00 gold per ton. There are several fissure veins connecting with the main ledge running high in gold and copper. This company is installing a pumping plant near the Colorado River for water supply, and now has about 10,000 feet of pipe on hand for this purpose.

The Rapynco Mining Co., another private corporation, with properties located in the Riverside district just seven miles from Calzona, on what was known as the McKissen group of claims, has struck a five-foot ledge of quartz and decomposed lime and iron carrying high values in gold and 20 per cent. copper. This company has just closed negotiations for the holdings of Bradley & Morgan, consisting of seventeen claims adjacent to its property. The reported consideration is \$125,000.00.

The Riverside Mountain Mining district, west and south of Calzona, is divided into two divisions—the western and eastern—lying between which is a large basin well mineralized. There are many dykes which are mainly of diorite and porphyry. Ores are found in micaceous quartzose, diorite country rock and granite in several stages, with croppings of silicious limestone with an intimate mixture of decomposed lime in granite formation.

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THE MINING WEST

Sketches, Anecdotes and Reminiscences by the Editor
of the Mining Review

HON. GEORGE S. NIXON

MR. GEORGE S. NIXON, now one of the senators from the state of Nevada, is among the most remarkable men identified with the recent history of the Sagebrush state. He was born in Placer county, California, April 2, 1860, and remained upon his father's farm until he was nineteen years of age. He secured a fairly complete education in the public schools and then struck



HON. GEORGE S. NIXON

out for himself as an employee of the Southern Pacific railroad at New Castle, Cal. For some years he occupied inferior positions at several points and meanwhile became proficient in the art of telegraphy. In 1884 he was made agent at the little town of Belleville on the Carson & Colorado railroad and occupied the position of telegraph, ticket, express, freight and baggage agent. Some years later he started his real career as a clerk in a bank at Reno, Nev., and subsequently succeeded in raising capital for the First National Bank of Winnemucca, Nev., of which he is still president. Gradually he extended his sphere of influence to other banks in different parts of the state and at the same time made profitable investments in land and cattle. While occupying the position of cashier at Winnemucca, Mr. Nixon first met George Wingfield, and then

was formed the spectacular partnership that has resulted in millions of dollars for both. That was at the time of the first discoveries at Tonopah and Wingfield left for the new fields with \$300 borrowed from Mr. Nixon. Writing of the partnership in the Great Southwest Number of the Mining Review last March, Mr. James W. Abbott, the well-known mining engineer, who knows the history of both men well, said: "One day Wingfield rode into Winnemucca and found a new excitement in town. Jim Butler had taken his burro and a kog of water and a little flour and bacon and gone prospecting again. Jim Butler had come back to Belmont and 'whacked up' with Tom Oddie on some new location he had made, if Oddie would assay the rock. They had both done this often and nothing particular had come of it before. But this time, the gold and silver buttons in the cupels had caused a sensation. Butler and Oddie had hooked up a venerable plug and an ancient mule, and had left together between two days for the new find. It was said that they were sacking ore and had a stake in sight. In fact, some people had brought in samples and Winnemucca had assayed them. Winnemucca had the fever. Wingfield got it. He was broke as usual, but he went up to see Nixon and talk it over; Nixon knew him, knew he was absolutely good for any promise he made, and let him have \$300 to go to the new camp. Then, there and thus, the firm of Nixon & Wingfield started. Neither realized it that day, but Fate had ordered it." The result of the partnership is too well known to need relation here; suffice it to say that the two men eventually succeeded in securing control of the greatest high-grade gold mine in the world—the Goldfield Consolidated Mines—capitalized for \$50,000,000 and now paying dividends at the rate of over a million dollars every quarter. Some months ago Mr. Nixon disposed of his mining holdings to his partner and now confines his attention to his banking interests and to his duties as senator from Nevada. While it is impossible to ascertain the value placed upon his holdings at the time of the transfer it is safe to say that it reached well up into the millions and made Mr. Nixon one of the richest men in the West. Mr. Nixon was elected to the United States Senate on January 25, 1905, succeeding the late Senator William M. Stewart the following March. He is president of the Nixon National Bank of Reno, the First National Bank of Winnemucca and the Tonopah Banking Corporation of Tonopah.

RELIC OF GREENWATER

THE ACCOMPANYING picture will need some explanation even to those who remember the halcyon days of Greenwater, that boom town of super-heated air, perched high on the Funeral Mountains, overlooking the Valley of Death. Even they may not understand it at a glance, but it is the last relic of the boom, a reminder of the fact that the little town in the gulch had metropolitan aspirations at one time and included the paraphernalia of the printing house among its proud possessions. That is it—the last of the Greenwater Times, that paragon of

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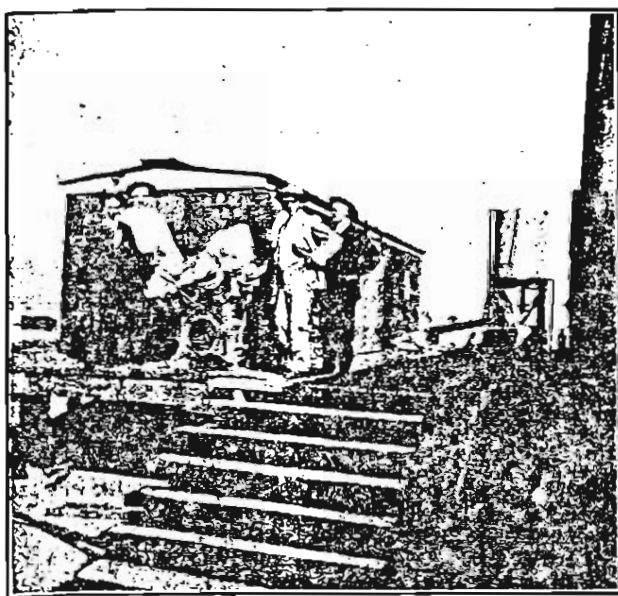
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grammatical elegance and perfect truthfulness that made its appearance every week in the days when the saloon was on every hand and when the near-millionaires of the copper Eldorado were made overnight! In those days freight was not an inconsiderable item in the general scheme of life and the little hand press responsible for the weekly effort probably cost a small fortune when landed by the perspiring and blasphemous teamsters after forty-two miles of blistering travel across the sands of the Amargosa. Since then the Tonopah & Tidewater has cut the distance in two, but as one gazes on the relic of by-gone days he can also remember that the little station of Death Valley Junction, where the press now rests, was about midway between unspeakable Amargosa on the Las Vegas & Tonopah railroad and the copper camp of the Funeral hills. At the time the press was sent in to



RELIC OF THE GREENWATER ROOM, AT DEATH VALLEY JUNCTION, ON THE TONOPAH AND TIDEWATER R. R.

diffuse light among the struggling rainbow-chasers on the hill, the town of Greenwater lay in the little cloud-burst-bewn gulch to the north of the Greenwater & Death Valley mines on which Charles M. Schwab cut some of his mining eye teeth and at the same time deprived his fellow-stockholders of every sound financial tooth in their heads. Those were the days of boom, the days when whisky was cheaper than water, (and wiskey was worth two-bits a drink), when lots were selling like the proverbial hot cakes, when a killing was a mere daily pleasantry and when rumors of fabulous strikes of copper turned mens' heads. Men dealt in millions on paper and held up a tallying finger to the bartender when they called for a drink. It was all hot air, promise and no cash. But tomorrow was coming for them all and with it fortune and the hope of real money. To help the general plan of life along, Col. Jim Brown, a veteran of the pencil, and F. L. Reber moved in from Las Vegas, where they had been dodging the sheriff for some months and began the publication of the Greenwater Times. I have no

copy of the early issues at hand, but I remember well the general appearance of the sheet and I also remember the familiar figure of Brown as he swung down the street with a bundle of wet papers under his arm and button-holed that portion of the populace that had not yet learned to dodge him on publication days. If I remember rightly, I was one of the advertisers at that time and the Times' columns told the waiting world that I was ready to cash checks with real money at the little town of Furnace, two miles over to the north and that, if properly approached, I might be induced to sell town lots at the trifling and altogether ridiculous price of \$500 for insides and correspondingly more for corners. I have a great deal upon my conscience, burdens collected in twenty years tussle with the West, but I am glad to be able to record the fact that my philanthropic efforts did not meet with ready response and that the sale of town lots seemed to languish. But that has nothing to do with the Greenwater Times! In the winter of 1906-7 the rival townsite owners of the district patched up a truce and the whole town was moved over two miles to the south on what was known as the Ramsey townsite. From that time on the boom aspect of the community disappeared like gas from a punctured balloon. Soon whiskey was down to a bit a drink—and less for real money—but the Greenwater Times kept on its rocky course, occasionally emitting a croak intended to resemble a noise like a returning boom, but gradually descending, week by week, to the ignominy of patent "innards." Before it finally subsided into the graveyard of journalistic hopes both the outside and the inside were of boiler plate, embellished here and there with applications for patent upon mineral claims owned by men who had a lingering hope that prosperity would return. At last the final ad. was run and the press was then shipped down to Death Valley Junction within sight of the great Lila C. mine. And there it stands today, uncared for, but none the less eloquent—a reminder that man proposes and somebody else disposes, that all is not fact that fiction weaves and that it takes more than wind and promoters to convert a desert into a Butte. Col. Jim, I understand, has returned to Montana, his first love, while his partner, Reber, has been on the firing line in every new mining camp that has sprung up since the Greenwater Times gave up the ghost. He was one of the pioneers at Gold Circle, where he stuck to his habit and ran a paper and more recently I understand he has migrated to Bannock, where he is leasing with indifferent success. But I have great hopes for him and believe he will eventually catch up with Fortune. Any man who could remain optimistic and cheerful with such a load on his mind as the Greenwater Times is certainly made of excellent stuff and deserves to receive some recompense for the hell he found, ready-made, overlooking the spot from whence nothing good ever came but the millions of Borax Smith.

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KERN COUNTY

Kern Development Company Completes Three-Compartment Shaft to Open Old Workings of Big Blue and Sumner Mines. Large Amount of Capital Expended. Properties to be Worked Under New Leasing Plan.

(SPECIAL CORRESPONDENCE OF THE MINING REVIEW.)

THE KERN DEVELOPMENT CO., an eastern enterprise owning a number of patented mines, lands and water power on the Kern river near Kernville, Cal., has completed a new three-compartment shaft to the old workings of the Big Blue and Sumner mines.

The completion of this shaft makes it possible to open up ore bodies heretofore inaccessible in consequence of the destruction by fire, of the main working shaft on the Sumner mine in 1883.

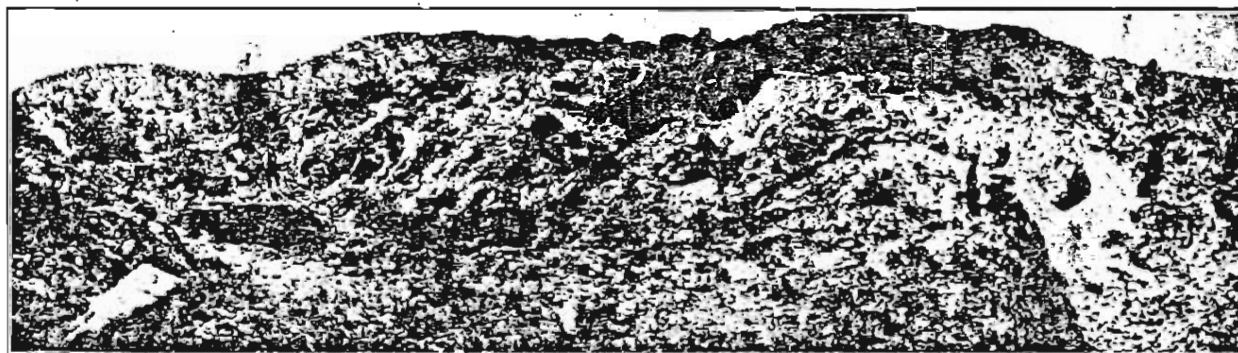
shaft by means of drifts and cross-cuts.

A large amount of capital has been expended upon the property for water power, buildings, machinery, and in bringing the working equipment to the present condition of efficiency, and, as the climatic conditions are ideal, the work can be prosecuted throughout the entire year.

While the Kern Development Co. is a holding company only, the various mines are to be worked under leases, or sold in part only, to subsidiary

erties, as it enables the investor to use his funds in actually working the property, without the necessity of making heavy expenditures for preliminary equipment, and allowing both buyer and seller to share in the ultimate profits of the mine; but it has met with the approval of conservative business men.

This plan was evolved in consequence of the oft-repeated statement that mine owners discourage the industry by demanding large payments, and large expenditure for preliminary equipment, so that when these conditions are met, the investment is frequently exhausted before the ore bodies are actually reached or worked, and, while it is not claimed that the plan is original, it is still sufficiently so to enable the best results to be obtained by both owner and investor. Whatever methods may be adopted to advance the inter-



OPEN QUARRY WORK AT BIG BLUE MINE, KERN COUNTY, CAL.

In addition to operating the Big Blue and Sumner mines through the new shaft, and the North Extension Sumner to the north, the Lady Belle, Bull Run, Urbana, Frank and Beauregard mines to the west, which formerly produced large quantities of high grade ore, can now be readily reached and worked from the new

companies, and the sales are to be made upon such terms that payments shall be made from the ore produced from the several mines for the interest sold in each, such interest in no case to exceed fifty-one per cent.

To some extent this is a departure from ordinary methods in the development and disposal of mining prop-

erty. The operations at Kernville are under the direction of Mr. R. L. Long, superintendent.

ARIZONA TUNGSTEN.

Deposits Near Benson Said To Be Unique.

About twelve miles south by a little east of Benson, Cochise County, Ariz., in the Whetstone Mountains, an attempt has been made to mine wolframite, the tungstate of manganese and iron, from deposits that are thought to be unlike anything heretofore described in the literature of ore deposits. The mineral occurs in a light-colored granite that is intrusive in mica schist and limestone, being found near the contact of granite 60 or 70 feet long which runs

out into the schist. Most of it is in segregations in the granite similar to hornblende and biotite segregations in granite at many other places. The ore appears to be an original constituent of the granite. The deposit was formerly worked and a few tons of ore were taken out and shipped. It is said that as mined and hand picked the ore averaged 10 per cent. of tungstic trioxide. No work has been done here for the last two or three years, and the deposit is of interest mainly because of the peculiar occurrence of the mineral. A short paper describing this deposit, by Frank L. Hess, appears in

Bulletin 350 of the United States Geological Survey, a copy of which may be obtained on application to the Director, Washington, D. C.

The directors of the Calumet & Hecla Mining Co. (Michigan) have declared a quarterly dividend of \$8 per share. This brings the total of dividends up to \$110,550,000.

Advices from Washington state that the Alaska copper output for 1909 will probably slightly exceed 4,000,000 pounds, but only five or six properties shipped any ore during the season.

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